FOOD AND NUTRITION PLANNING FOR IRAN TO THE YEAR 2000

BY

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TO: E. H. ALAVI

With love, respect and gratitutde

CONTENTS

LIST OF TABLES

LIST OF FIGURES

MAP

ABSTRACT

The objective of this study has been a macro-evaluation of the agricultural economy of Iran with emphasis on the projection of demand for food in the year 2000 and its relation to supply. The study covers the following areas:-

Some geographical and agro-climatic characteristics of Iran;

An introduction to the Iranian economy and its transformation during the past 20 years;

Some economic and social characteristics of the rural areas of Iran including the characteristics of rural settlements, management and form of labour of agricultural units, state of education, medical facilities and amenities in the rural areas, and rural income and expenditure;

Land including land resources, land reform and other land policies, and land use;

Water including total available water, water use and efficiency;

Population and labour force including evolution of population and its age, sex and area distribution, marital status of population, active population, employment and unemployment, and projection of population to the year 2000;

Production and marketing including value added in agriculture, commodity production with some specific examples, and inputs and machinery use;

Foreign trade;

Consumption and demand including present consumption, and per caput and total demand projection;

Summary and conclusions.

DECLARATION

I hereby declare that this thesis has been composed by myself and the whole work is my own apart from quotations which have been indicated in their relevant places.

A. Parvizi

ACKNOWLEDGEMENTS

I would like to thank all those people who have helped me to carry out this study. I am especially indebted to my supervisors, Professor N. F. Robertson and Mr. R. H. Fawcett, for all their encouraging help. I am also grateful to those friends and colleagues who provided me with the statistics and information relevant to this study. Finally, I would like to thank my wife not only for her sound and efficient typing of this thesis, but also for her support and patience during the past three troubled years.

ABBREVIATIONS AND SYMBOLS

GDP	gross domestic product
GNP	gross national product
GNI	gross national income
m	metre
mm	millimetre
km	kilometre
g	gramme
mg	milligramme
ha	hectare
kwh	kilowatt/hour
MW	megawatt
kcal	Kilocalorie
C	centigrade
s	second
Rls.	Iranian rials
£	British pounds
$	U.S. dollars
-	figure not available
+	figure less than half the unit shown
Θ	non-calculable
°	degree

CORRESPONDENCE OF IRANIAN AND GREGORIAN CALENDARS

Month				Year	
Iranian		Gregorian		Iranian	Gregorian
Farvardin	1	March	21	1339	1960/1
	31	April	20		
Ordibehesht	1	April	21	1344	1965/6
	31	May	21		
Khordad	1	May	22	1349	1970/1
	31	June	21		
Tir	1	June	22	1354	1975/6
	31	July	22		
Mordad	1	July	23	1359	1980/1
	31	August	22		
Shahrivar	1	August	23	1364	1985/6
	31	September	22		
Mehr	1	September	23	1369	1990/1
	30	October	22		
Aban	1	October	23	1374	1995/6
	30	November	21		
Azar	1	November	22	1379	2000/1
	30	December	21		
Dey	1	December	22		
	30	January	20		
Bahman	1	January	21		
	30	February	19		
Esfand	1	February	20		
	29/30	March	20		

CHAPTER 1: SOME GEOGRAPHICAL AND AGRO-CLIMATIC CHARACTERISTICS OF IRAN

Iran is a country in south-west Asia which lies in the north temperate zone between latitudes 25° and 39.5° north and longtitudes 44° and 63° east.(1)

The total area of Iran is 1,648,000 square kilometres and its land area is 1,636,000 square kilometres.(2) On the map the country looks like a trapezoid; the length of its longer diagonal from the north-west to the south-east is 2,210 kilometres and the length of its shorter diagonal from the north-east to the south-west is 1,400 kilometres.

Iran, clockwise from the west, borders on Iraq, Turkey, the Soviet Union, the Caspian Sea (which is divided between Iran and the Soviet Union), Afghanistan, Pakistan, the Oman Sea and the Persian Gulf (Table 1).

Apart from latitude another major factor influencing the climate of Iran is topography. There are four distinct categories of heights in Iran, the Alborz mountain range in the north, the Ameno-Zagros mountain range in the west and the south, the scattered mountains in the centre and finally the eastern heights. The two mountain ranges meet in the north-west of the country and form the peak of a triangle which encloses a plateau in the centre and the

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(1) Statistical Yearbook, 1355 (1976/7) - Statistical Centre of Iran.

(2) Production Yearbook, 1978 - Food and Agriculture Organization of the United Nations (FAO).

Table 1

BOUNDARIES OF IRAN

(km)

Boundary	With Iraq	With Turkey	With the Soviet Union	With Afghanistan	With Pakistan	Water front of (1) the North	Water front of (2) the South	Total
Length	1,280	470	1,740	850	830	630	1,880	7,680

(1) The Caspian Sea.
(2) The Oman Sea and the Persian Gulf.

Source: Statistical Yearbook, 1355 (1976/7) - Statistical Centre of Iran.

east of the country. The Alborz mountain range, which continues all along the north of Iran, separates the Caspian littoral and the Gorgan Plain from the central plateau with a maximum elevation of 5,670 metres, whereas the Ameno-Zagros mountain range forms the western and half of the southern boundaries of the plateau with several peaks in excess of 4,000 metres. On the whole, Iran is a relatively high land and only 9 percent of the total area has an elevation of less than 300 metres, whilst 55 percent has an elevation of 300-1,500 metres and 36 percent is higher than 1,500 metres above the open sea level (Table 2).

Some extensive parts of Iran are covered by deserts, the largest of them is the Kavir desert (Dasht-e-Kavir) on the south side of the Alborz mountain range in the centre and the east of the plateau, and the lowest one is the Loot desert (Dasht-e-Loot) in the south-east of the country. The Loot desert is most probably the driest and hottest desert in the world and some of its characteristics are the best examples of their kinds. Although in most deserts there are zones of no vegetation or animal life, the area of such a zone in the centre of the Loot desert is bigger than any other similar zone in the world. Also the size of an area of parallel sand-dunes (a result of combined erosion of land by water and wind) with 150 kilometres length and 60 kilometres width is unique. The biggest sand pyramid in the world which is more than 230 metres high is in the east of this desert.(1)

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(1) Statistical Yearbook, 1355 (1976/7) - Statistical Centre of Iran.

Table 2

HEIGHT OF IRAN

Height from sea level (m)	Area ('000 km^2)	Percent of total
From Caspian Sea's level (1) to 300	148	9
From 300 to 1,500	907	55
Above 1,500	593	36
Total	1,648	100

(1) Twenty eight metres below the open sea level.

Source: Statistical Yearbook, 1355 (1976/7) - Statistical Centre of Iran.

At any time, temperature and relative humidity of different regions of Iran vary considerably. When it is possible to ski in the mountainous areas of the west and the north-west, swimming in the Oman Sea by the local people is commonplace.

Four climatic regions are distinguished in Iran, the Caspian region in the north, the mountainous region of the west, the coastal region of the south and the central plateau. In all seasons precipitation and relative humidity in the north and the west are higher than the south and the plateau. In the Caspian littoral there are several rivers with sizable, permanent and nearly regular flow of water, but in the other regions this kind of river is very rare.(1)

With respect to the maximum precipitation of spring and autumn, and the relatively mild temperature of the Caspian region, the climate of the region is considered to be of the Mediterranean type, but the dispersion of precipitation during the year is markedly different. In the western part of the region relative humidity is high throughout the year and precipitation reaches almost 2,000 millimetres per annum which is the highest rainfall in Iran.(1) Relative humidity and precipitation diminish eastwards, while temperature increases. Rice is the predominant crop on the littoral and its cultivation area accounts for 75-80 percent of the total cultivation area of this crop in the country.(2) Tea, citrus and

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(1) Statistical Yearbook, 1355 (1976/7) - Statistical Centre of Iran.

(2) Agricultural Census of 1352 (1973/4) & Agricultural Sample Censuses of 1350 & 1353 (1971/2 & 1974/5) - Statistical Centre of Iran.

vegetables are also of some importance on the littoral, but on the Gorgan plain in the east of the region cotton and cereals are the major crops.[1] The area under cotton on this plain amounts to 65-70 percent of the total cultivation area of this crop in Iran.[2] There are abundant surface water supplies in the region to provide supplementary irrigation in the summer for most crops and there is also sufficient rain on the littoral to allow some measures of double cropping.[3] The share of fallow lands in the total agricultural lands in the Caspian region is about 7 percent which is lower than any other area in the country.[4]

In the mountainous region of the west winters are very cold and there are over 100 days with temperatures below freezing in cities, which are usually built at relatively lower altitudes, and over 150 days (in some areas up to 220 days)[5] in the rural areas which virtually cut the villages off from the outside world during the whole winter period. Summers in the highlands are mild but the lowlands and valleys have relatively milder winters and hot summers.

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(1) Except rice.

(2) Agricultural Census of 1352 (1973/4) & Agricultural Sample Censuses of 1350 & 1353 (1971/2 & 1974/5) - Statistical Centre of Iran.

(3) National Cropping Plan; a report to the Ministry of Agriculture and Natural Resources (of Iran), by Bookers Agricultural and Technical Services Limited & Hunting Technical Services Limited, Shahrivar 1354 (August 1975).

(4) Statistical Yearbook, 1356 (1977/8) - Statistical Centre of Iran.

(5) Climatic Atlas of Iran - Plan and Budget Organization (of Iran), 1344 (1965/6).

The western region contains some 55-60 percent of the total cultivation area of cereals of the country,[1] about 80 percent of which is under unirrigated farming mainly as a winter monoculture alternating with fallow.[2] Short duration crops are grown during summer using supplementary irrigation, and on the whole irrigation is necessary if good yields are to be obtained from some crops. Although there is a danger of late spring frosts in the north of the region, there are extensive plantations of temperate fruit-bearing trees and vines around Lake Rezaiieh which modifies its surrounding climate. In the lower half of the region warm spring temperatures cause early maturity of crops but in the central areas some hot and dry spring winds adversely affect the crops. In the south, after cereals, sugar-beet and cotton are the major crops, but they need supplementary irrigation.

The Ameno-Zagros mountain range prevents the penetration of the wet Mediterranean weather into the central plateau and the west-side of the range is markedly wetter than its eastside. Elevations of more than 3,000 metres have permanent snow cover.[3] Relative availability of grass on lowland pastures in winter and its shortage in summer force the seasonal movement on nomads or, in some cases in recent years, on their herds.

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(1) Agricultural Census of 1352 (1973/4) & Agricultural Sample Censuses of 1350 & 1353 (1971/2 & 1974/5) - Statistical Centre of Iran.

(2) Except rice.

(3) Statistical Yearbook, 1355 (1976/7) - Statistical Centre of Iran.

The central plateau, but for the foothills and some scattered areas, is an arid region. In this region winters are very cold and summers are very hot and dry. The foothills and slopes of the Alborz and the Ameno-Zagros mountain ranges and the eastern heights, inside the plateau, and also those of the scattered central mountains are seasonally arid and enjoy some wet winds which cause precipitation. The rest of the plateau is arid and relative humidity is very low. The differences of temperatures between summers and winters as well as between nights and days in summer are quite considerable. Rainfall on the plateau is low and very often half of the total annual precipitation may fall on a single day.(1) In the north-west of the plateau cereals rotating by either cotton or sugar-beet and fallow are the main winter crops. There are some areas of unirrigated cereals in the south-west of the plateau, but the main crops in these parts are fodder plants. In the centre of the plateau there are two major areas of irrigated farming producing cereals, sugar-beet, vegetables and melons. There are only minor and isolated areas of irrigated and very small areas of unirrigated farming in the south-east of the plateau. Pistachio, citrus, dates and winter vegetables are the main products in these parts apart from some locally important cereals. There are major areas of unirrigated and irrigated cereals in the north-east of the plateau and after cereals, melons, sugar-beet, cotton, pulses, herbs and colouring matters are

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(1) Climatic Atlas of Iran - Plan and Budget Organization (of Iran), 1344 (1965/6).

the most important crops in these parts, but tree fruits are also of some importance.[1]

The coastal region of the south has a humid climate with hot summers and mild winters. Winters in the eastern part of the region are milder than the western part, but there are several drought years too. Precipitation over the eastern part is low and its dispersion during the year is extremely uneven[2] (Table 3). The cultivated areas in the coastal region of the south become less as one travels eastwards, and apart from cereals, dates are the only other common production all over the region. Melons and vegetables, sugar-cane, pulses and fodder plants are other important crops in the western parts of the region, while winter sugar-beet and citrus are gaining some importance. In the centre of the region cereals are produced mostly by unirrigated farming and in the eastern parts there are minor areas under cultivation of vegetables.

In 1355 (1976/7) the status and names of some provincial divisions of Iran were changed by the Ministry of Interior.[3] According to these divisions, after the above-mentioned changes, there were 23 provinces in Iran at that time (Map). Khorasan was the largest province and Boyer Ahmad and Koh-Giluyeh was the smallest one with

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(1) Agricultural Census of 1352 (1973/4) & Agricultural Sample Censuses of 1350 & 1353 (1971/2 & 1974/5) - Statistical Centre of Iran.

(2) Climatic Atlas of Iran - Plan and Budget Organization (of Iran), 1344 (1965/6).

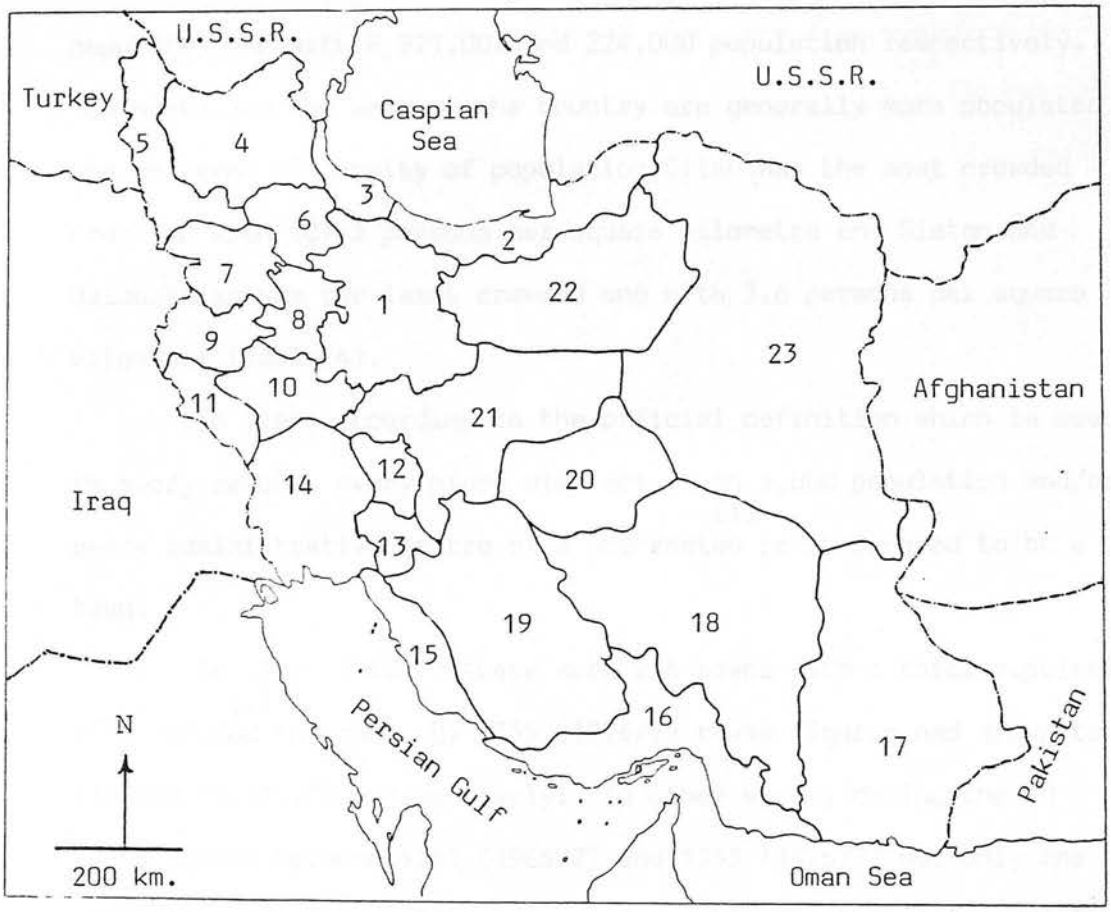
(3) After the recent revolution, according to some newspapers, some names have been changed again, but as yet there is no published official document about the new changes.

WEATHER OF DIFFERENT CITIES OF IRAN
1340-1354
(1961/2-1975/6)

Synoptic Station	Year of establishment	Temperature (C°)					Rainfall (mm)		Relative Humidity (%)		Average number of frost days	Height from open sea level (m)
		Average of maximums	Average of minimums	Absolute maximum	Absolute minimum	Average	Annual average	Maximum in one day	At 6:30 am	At 12:30 pm		
Tehran	1322	22.5	11.0	43.0	-14.8	16.8	216	39	48	29	56.9	1,191
Ghazvin	1338	21.5	7.0	41.0	-19.0	14.3	293	39	66	36	83.4	1,304
Arak	1334	20.8	7.4	41.0	-28.0	14.1	387	63	56	33	81.1	1,754
Rasht	1335	20.4	10.2	37.0	-19.0	15.3	1,349	103	93	78	31.1	-7
Pahlavi	1329	19.6	12.6	37.0	-11.0	16.1	1,772	353	90	75	11.7	-22
Ramsar	1334	19.2	12.2	34.0	-10.0	15.8	1,211	252	90	77	14.0	-20
Babolsar	1328	20.7	12.8	42.2	-6.6	16.7	839	200	93	71	11.7	-21
Gorgan	1331	22.8	12.6	43.6	-9.6	17.7	638	200	77	57	16.3	155
Tabriz	1327	17.7	6.3	41.5	-25.4	12.0	339	97	67	43	103.6	1,349
Khoy	1328	18.3	5.0	42.0	-29.6	11.7	324	44	83	50	110.3	1,157
Rezaiieh	1329	17.6	5.1	38.4	-22.0	11.3	360	50	73	48	104.5	1,312
Kermanshah	1322	22.4	5.3	44.2	-27.0	13.9	530	130	63	37	95.1	1,322
Ahvaz	1335	32.7	16.8	54.0	-7.0	24.7	205	71	63	33	2.6	18
Abadan	1328	32.5	17.7	51.0	-4.5	25.1	145	55	63	29	1.7	13
Dezful	1339	32.0	16.2	52.7	-9.5	24.1	374	79	57	29	4.2	143
Shiraz	1328	25.4	8.5	42.2	-14.0	16.9	295	107	55	27	62.0	1,491
Bam	1335	28.9	15.9	47.2	-9.0	22.4	56	31	42	28	13.6	1,062
Kerman	1329	24.2	6.2	40.0	-24.8	15.3	144	60	43	19	97.6	1,749
Mashhad	1328	20.9	6.0	41.0	-28.0	13.5	234	39	68	40	97.7	985
Sabzevar	1334	23.9	9.2	44.5	-19.8	16.5	167	31	54	29	73.6	941
Torbat Heidariieh	1337	21.6	6.8	41.0	-21.8	14.2	245	39	60	37	94.6	1,333
Birjand	1334	24.8	8.9	43.5	-14.0	16.9	160	34	49	24	67.1	1,456
Tabas	1341	28.9	12.6	48.2	-9.3	20.7	75	26	54	25	40.3	691
Esfahan	1326	22.8	8.9	41.0	-16.0	15.9	105	27	49	26	74.8	1,590
Zahedan	1331	26.5	9.4	42.6	-22.0	18.0	91	46	46	21	59.5	1,370
Saghez	1339	19.5	3.2	42.0	-36.0	11.4	473	89	72	43	127.4	1,474
Sanandaj	1338	20.7	5.7	42.0	-31.0	13.2	453	57	65	38	102.9	1,373
Bandar Abbas	1335	32.2	22.1	47.0	1.0	27.1	133	104	77	55	0.0	10
Hamedan	1325	19.1	2.5	39.0	-33.7	10.8	315	58	65	39	135.5	1,644
Khorram Abad	1329	25.6	10.6	47.4	-13.3	18.1	531	60	56	34	26.1	1,160
Shahrood	1329	20.7	7.4	40.0	-14.0	14.1	158	36	64	37	87.4	1,366
Semnan	1343	24.2	11.0	44.5	-12.5	17.6	132	41	53	34	47.7	1,138
Zanjan	1334	18.1	3.9	39.2	-29.6	11.0	333	36	70	42	117.1	1,663
Yazd	1332	26.1	11.0	44.6	-16.0	18.5	51	24	40	21	59.6	1,230
Shahr-e-Kord	1334	20.4	3.6	41.0	-32.0	12.0	338	200	59	33	117.5	2,066
Bushehr	1331	29.0	18.9	50.0	-1.0	23.9	217	152	76	54	0.3	14

Source: Statistical Yearbook, 1355 (1976/7) - Statistical Centre of Iran.

PROVINCES OF IRAN
1355
(1976/7)



1. Markazi
2. Mazandaran
3. Gilan
4. East Azarbayejan
5. West Azarbayejan
6. Zanjan
7. Kordestan
8. Hamedan
9. Kermanshahan
10. Lorestan
11. Ilam
12. Chaharmahal and Bakhtiyari
13. Boyer Ahmad and Koh-Giluyeh
14. Khuzestan
15. Bushehr
16. Hormozgan
17. Sistan and Balouchestan
18. Kerman
19. Fars
20. Yazd
21. Esfahan
22. Semnan
23. Khorasan

the area of 313,337 and 14,261 square kilometres respectively. Markazi was the most populated province and Ilam was the least populated one with 6,921,000 and 224,000 population respectively. The north and the west of the country are generally more populated and in terms of density of population Gilan was the most crowded province with 107.3 persons per square kilometre and Sistan and Baluchestan was the least crowded one with 3.6 persons per square kilometre (Table 4).

In Iran, according to the official definition which is used in every census, every place with more than 5,000 population and/or every administrative centre of a Shahrestan[1] is considered to be a town.

In 1345 (1966/7) there were 265 towns with a total population of 9,768,000 in Iran.[2] By 1355 (1976/7) these figures had grown to 366 and 15,715,000 respectively.[2] In other words, during the 10 years period between 1345 (1966/7) and 1355 (1976/7) not only the population of those 265 towns grew fast, by more than 4.4 percent per annum, but also 101 new towns with the approximate population of 680,000 became parts of the urban areas and population (Table 5).

In 1355 (1976/7) there were 22 major cities in Iran with a population of more than 100,000 each, and only one of them, Tehran, had more than 1,000,000 population (Table 6). Tehran, the capital, is by far the largest city of Iran. During 10 years between 1345

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(1) A Shahrestan is a smaller division than a province.

(2) Without the population of the collective families, e.g. in prisons, barracks, etc.

Table 4

PROVINCES OF IRAN, BY AREA AND POPULATION
1355
(1976/7)

Province	Centre	Area (km^2)	Population ('000) (1)	Density of Population (Person/km^2)
Markazi	Tehran	78,788	6,921	87.8
Khorasan	Mashhad	313,337	3,267	10.4
East Azarbayejan	Tabriz	67,102	3,195	47.6
Mazandaran	Sari	47,365	2,384	50.3
Khuzestan	Ahvaz	64,654	2,177	33.7
Fars	Shiraz	133,298	2,021	15.2
Esfahan	Esfahan	94,903	1,975	20.8
Gilan	Rasht	14,709	1,578	107.3
West Azarbayejan	Rezaiieh	43,660	1,405	32.2
Kerman	Kerman	192,978	1,088	5.6
Hamedan	Hamedan	20,172	1,087	53.9
Kermanshahan	Kermanshah	24,549	1,016	41.5
Lorestan	Khorram-Abad	31,383	925	29.5
Kordestan	Sanandaj	24,998	782	31.3
Sistan and Balouchestan	Zahedan	181,578	659	3.6
Zanjan	Zanjan	21,848	579	26.5
Semnan	Semnan	94,329	486	5.2
Hormozgan	Bandar Abbas	66,557	463	7.0
Chaharmahal and Bakhtiyari	Shahr-e-Kord	14,820	394	26.6
Yazd	Yazd	56,896	356	6.3
Bushehr	Bushehr	27,653	345	12.5
Boyer Ahmad and Koh-Giluyeh	Yasuj	14,261	245	17.2
Ilam	Ilam	18,162	244	13.4
Iran	Tehran	1,648,000	33,592	20.4

(1) Without the population of the collective families.

Source: Statistical Yearbook, 1356 (1977/8) - Statistical Centre of Iran.

Table 5

DISTRIBUTION OF TOWNS IN IRAN, BY POPULATION
1345 & 1355
(1966/7 & 1976/7)

Population group	1345 Census			1355 Census		
	Number of towns	Population ('000)	Percentage	Number of towns	Population ('000)	Percentage
Over 1,000,000	1	2,720	27.8	1	4,496	28.6
500,000 to 999,999	0	0	0.0	3	1,941	12.3
250,000 to 499,999	5	1,780	18.2	4	1,323	8.5
100,000 to 249,999	8	1,167	11.9	14	2,031	12.9
50,000 to 99,999	15	1,068	10.9	21	1,524	9.7
25,000 to 49,999	30	1,081	11.1	47	1,628	10.4
10,000 to 24,999	72	1,104	11.3	108	1,622	10.3
5,000 to 9,999	119	800	8.2	163	1,124	7.1
Less than 5,000 but centre of a Shahrestan	15	48	0.5	5	17	0.1
Total	265	9,768 (1)	100.0	366	15,715 (1)	100.0

(1) Without the population of the collective families.

Source: Statistical Yearbook, 1356 (1977/8) - Statistical Centre of Iran.

Table 6

(1)
MAJOR CITIES OF IRAN, BY POPULATION
1355
(1976/7)

City	Total	Male	Female
Tehran (Metropolitan area)	4,496,159	2,350,667	2,145,492
Esfahan	671,825	355,418	316,407
Mashhad	670,180	343,685	326,495
Tabriz	598,576	311,335	287,241
Shiraz	416,408	222,047	194,361
Ahvaz	329,006	170,544	158,462
Abadan	296,081	150,991	145,090
Kermanshah	290,861	153,104	137,757
Ghom	246,831	128,199	118,632
Rasht	187,203	93,883	93,320
Rezaiieh	163,991	85,607	78,384
Hamedan	155,846	81,359	74,487
Ardebil	147,404	77,531	69,873
Khorramshahr	146,709	75,770	70,939
Kerman	140,309	74,188	66,121
Karaj	138,774	72,323	66,451
Ghazvin	138,527	73,600	64,927
Yazd	135,978	69,321	66,657
Arak	114,507	58,448	56,059
Dezful	110,287	57,382	52,905
Khorram Abad	104,928	56,110	48,818
Brujerd	100,103	51,252	48,851

(1) With 100,000 or more population.

Source: Statistical Yearbook, 1356 (1977/8) - Statistical Centre of Iran.

(1966/7) and 1355 (1976/7) its population rose by 5.2 percent per annum from 2,720,000 to 4,496,000 and its shares in the urban and the total populations increased from 27.8 and 10.5 percent to 28.6 and 13.4 percent respectively. Tehran, in spite of the rapid expansion of other cities due to the beginning of some large industrial projects, is still very much the dominant city of Iran. This dominance of one city, which is usually one of the concomitants of developing countries, has caused great difficulties through the years. The evergrowing population of Tehran has increased the need for the new funds to ameliorate the living conditions in the city, whereas spending more money has widened the economic gap between the capital and the rural areas as well as the other cities, and that in turn has enhanced the allurement of Tehran to attract more migrants. Little has been done to avert the situation, and especially a strong bureaucratic centralization has worsened this continual vicious circle.

CHAPTER 2: AN INTRODUCTION TO THE IRANIAN ECONOMY

The present state of agriculture in Iran has been precipitated by two groups of events. The first group was composed of those events that took place in other sectors of economy with no ostensible links to agriculture, whereas the second group was composed of those events that happened in agriculture or bore direct relationships with it. Any study of the general state of agriculture in Iran would be incomplete without reference to both of these groups.

2-1 Methodology for Index Number Adjustments

In 1338 (1959/60) for the first time, the Bank Melli Iran, a state-owned commercial bank which also carried out the duties of a central bank, was assigned to calculate the national accounts of Iran on a regular basis. Later that year the Central Bank of Iran was established by the Government as an independent bank and in the following year the task of calculating the national accounts was transferred to it.(1)

Prior to that time there was little information available to calculate the national accounts tables, nevertheless, some people had tried to work out some estimates. Those were individual efforts and without any reliable statistics, the results were noticeably inconsistent.

Ever since 1338 (1959/60) the Central Bank of Iran has produced the national accounts tables, both at current and at

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(1) National Income of Iran 1338-1344 (1959/60-1965/6) - Central Bank of Iran, Mehr 1346 (October 1967).

constant prices. At first the set of prices of 1338 (1959/60) was the basis of the calculation at constant prices, but later it was changed to that of 1348 (1969/70) and finally to that of 1353 (1974/5). To depict a better picture of the long term progress of the Iranian economy it was necessary to prepare the national accounts tables for the period from 1338 (1959/60) to the last possible year, 1356 (1977/8). Naturally, all the figures had to be presented on a uniform basis, but there was no publication available to show the appropriate figures for the whole period, and unfortunately, different publications have used different sets of prices. To prepare the necessary tables, figures for different years had to be collected from separate publications and readjusted or recalculated on a uniform basis.

The last set of prices, that of 1353 (1974/5), was chosen as the basis of calculations and the following publications have been used to collect the figures:

- National Income of Iran 1338-1350 (1959/60-1971/2) - Central Bank of Iran, Aban 1352 (November 1973).
- Some Economic and Social Statistics about Iran - Central Bank of Iran, Esfand 1355 (March 1977).
- Annual Reports and Balance Sheets (5 volumes), 1353 (1974/5) to 1357 (1978/9) - Central Bank of Iran.
- Statistical Yearbooks, 1355 (1976/7) and 1356 (1977/8) - Statistical Centre of Iran.

By comparing the corresponding figures which were available in different sets of prices, the coefficient of adjustment for every

category was interpolated. If, for example, the figures for the gross national product (GNP) of 1350 (1971/2) were available at current prices and constant prices of, both, 1338 (1959/60) and 1353 (1974/5), the coefficient of adjustment was calculated in the following way:

$$GNP\ 1350 = GNP\ 1350_{const.\ 1338} \times P\ 1350_{1338}$$

where:

$GNP\ 1350$ = GNP of 1350 at current prices

$GNP\ 1350_{const.\ 1338}$ = GNP of 1350 at constant prices of 1338

$P\ 1350_{1338}$ = Aggregative price index for 1350 on the 1338 base for the GNP

also:

$$GNP\ 1350 = GNP\ 1350_{const.\ 1353} \times P\ 1350_{1353}$$

where:

$GNP\ 1350_{const.\ 1353}$ = GNP of 1350 at constant prices of 1353

$P\ 1350_{1353}$ = Aggregative price index for 1350 on the 1353 base for the GNP

therefore:

$$GNP\ 1350_{const.\ 1338} \times P\ 1350_{1338} = GNP\ 1350_{const.\ 1353} \times P\ 1350_{1353}$$

and finally:

$$\frac{\text{GNP 1350 const. 1353}}{\text{GNP 1350 const. 1338}} = \frac{\text{P 1350 1338}}{\text{P 1350 1353}} = K$$

since the values for the left part of the equation were available, the value of K, the coefficient of adjustment, was calculated, and by applying K to all the GNP figures which were available at constant prices of 1338 (1959/60) the corresponding figures at constant prices of 1353 (1974/5) were obtained. This procedure was repeated for every category of the national accounts tables until all the tables were constructed at constant prices of 1353 (1974/5). Upon these tables and also the set of tables at current prices, the index, the percentage distribution, the annual rate of increase and the relative contribution towards the total rate of growth for every category were calculated. The results are shown in Tables 7 to 16, 37, 38 and 84.

2-2 Background

The Iranian economy is an oil dominated one and since World War II the fortune of the country has been strongly tied to the fortune of oil. It was oil revenue that gradually made it possible for the central government to exert its power in every corner of the country and it was the misuse of that revenue which brought about the recent revolution. After the coup of Mordad 1332 (August 1953) it took nearly six years for the central government to strengthen its power to undertake any real development programme. At that time, Iran was almost a feudal country and the large landlords were very powerful. Naturally, there were some conflicts of interests and the landlords

had objections to some of the central government's plans which they considered inimical to their aspirations. In Farvardin 1339 (April 1960) the land reform law, which was initiated purely for political reasons to break up the power of the large landlords and deprive them from their influence in their strongholds, passed through Parliament.(1) In Bahman 1341 (January 1963) the White Revolution and in 1342 (1963/4) the third national development plan started. The latter like its two predecessors was a vague policy plan for the Government.

In Khordad 1342 (June 1963) there was an uprising in the south of Tehran and in the following year there was a rebellion by some nomadic tribes in the south of Iran which were both swiftly suppressed. Apart from these two events and until the recent revolution, there was no conspicuous opposition or challenge to the power and activities of the central government, although there were some sporadic protests by the university students and a few anti-government activities by some guerrilla groups which were sharply dealt with.

The first three national development plans were in fact some(2) general guidelines for the Government, but the fourth plan was the first general plan with quantified targets for every aspect of the economy. It started in 1347 (1968/9) and finished in 1351 (1972/3) followed by the fifth national development plan which started in 1352

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(1) The actual operation started in 1962. See Chapter 4.

(2) The first two national development plans were septennial, but the third and the following plans were quinquennial.

(1973/4), revised in 1353 (1974/5) and finished in 1356 (1977/8). The 19 years between the beginning of 1338 (1959/60) and the end of 1356 (1977/8) can be divided into three distinct economic periods. The first period was from the beginning of 1338 (1959/60) until the end of 1349 (1970/1), the second period was between 1350 (1971/2) and 1351 (1972/3), and the last one was from the beginning of 1352 (1973/4) to the end of 1356 (1977/8).

2-3 First Period 1338-1349 (1959/60-1970/1)

During the first period Iran was gradually being transformed from a stagnated rural society to a country with basic qualifications to take the long road to industrialization. In this period the second national development plan finished, 1341 (1962/3); the third national development plan started, 1342 (1963/4), and finished, 1346 (1967/8); and the fourth national development plan, which due to the good performance of the economy was prepared as a general plan with a much heavier involvement of the Government in the economy, started, 1347 (1968/9). From the beginning of the first period the only major problem was the imbalance in growth of different sectors of the economy due to the neglect of agriculture. At that time and for some years to come, the official but undeclared belief and policy of the Government was that by industrialization the country would be able to earn enough money from the export of the finished industrial products to buy the agricultural commodities that it needed and, at the same time, finance the new industrial projects. The growth of the value added in agriculture, although very modest, in the years immediately after the start of the land reform programme, which was quite contrary to

the expectations, and three good years for agriculture - 1344 (1965/6), 1346 (1967/8) and 1347 (1968/9) - reinforced that belief and undermined the agricultural sector. In the first few years of the first period, the allocation of resources was of great importance and expert opinions were widely sought on almost every new project, any change of policy, and the ways to tackle the economic problems smoothly. The economy of Iran, which at the beginning of that period was working at less than full capacity with a relatively high rate of unemployment and underemployment (according to some unofficial estimates around 20 percent), was on the right path towards industrialization. Although many new industries were initiated as the assembly plants for the foreign goods, there were clear incentives to turn these plants to the production plants and even more incentives to export the finished products.

By the start of the fourth national development plan it was decided to push the economy harder and faster than before. For that purpose, the Government had to intervene in the economy more actively and directly and consequently the Government's share in the economy started to rise faster than ever before, e.g. the government share in the gross domestic fixed capital formation in real terms rose from 39.5 percent in 1338 (1959/60) to 50.1 percent in 1346 (1967/8) but to 61 percent in 1348 (1969/70). By this time, some far-sighted experts started to warn against the consequences of the imbalanced growth and the neglect of agriculture and their effects on the distribution of income and the acceleration of migration from the rural areas to the unprepared cities, and especially the danger of pushing

the economy harder and faster than it could tolerate in causing social and economic problems.[1] These warnings went unheeded.

In the first period the value added in agriculture, industry and mining, services and oil in real terms increased by the average annual rates of 3.8, 10.7, 8.7 and 14.3 percent respectively, and the gross national product went up on average by 8.6 percent per annum. The share of the value added in agriculture in the gross national product at current prices fell from 30.1 percent in 1338 (1959/60) to 20 percent in 1349 (1970/1), but the similar ratios for industry and mining, services and oil went up from 16, 37.9 and 16.6 percent to 21, 39.2 and 17.5 percent, respectively (Tables 7-9).[2]

The private consumption expenditure in real terms went up by an average of 7.1 percent per annum but its share in the gross national product at constant prices decreased from 76.3 to 66 percent, whereas, the public consumption expenditure not only rose by an

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(1) See: - The Annual Report and Balance Sheet, 1346 (1967/8) - Central Bank of Iran.

- The Annual Report and Balance Sheet, 1348 (1969/70) - Agricultural Development Bank of Iran.

(2) In 1353 (1974/5), the Central Bank of Iran was forced to introduce a new item in the national accounts tables as a result of the huge price increase of oil and due to the importance of it in the gross national product of Iran. This item, the "Compensation for Valuation of the Terms of Trade" or the "Terms of Trade Adjustment", which actually deals with new purchasing power of Iran's major exporting commodity, oil, distorts the results of calculations of distribution of the gross national product at constant prices (Table 9). Because the set of prices of 1353 (1974/5) has been used as the basis of calculations, in any year that the price of oil has been lower than that of 1353 (1974/5) that item is shown as a negative value; conversely, in any year that the price has been more than that of 1353 (1974/5), that item is shown as a positive value.

GROSS NATIONAL PRODUCT OF IRAN, BY INDUSTRY
1338-1356
(1959/60-1977/8)

At constant prices of 1353

	Iranian year / Gregorian year	1338 1959/60	1339 1960/1	1340 1961/2	1341 1962/3	1342 1963/4	1343 1964/5	1344 1965/6	1345 1966/7	1346 1967/8	1347 1968/9	1348 1969/70	1349 1970/1	1350 1971/2	1351 1972/3	1352 1973/4	1353 1974/5	1354 1975/6	1355 1976/7	1356 1977/8
GNP (Rls. 10^9)	Agriculture	175.4	178.9	180.5	182.4	185.5	189.4	204.4	211.6	228.2	246.1	253.3	264.7	256.9	271.0	286.5	303.3	324.0	341.7	339.0
	Industry and mining	85.1	89.9	96.9	106.0	120.5	126.9	149.7	168.8	195.0	217.2	233.7	254.3	290.7	333.4	387.7	436.8	532.5	630.4	684.3
	Services	187.6	197.0	198.7	208.7	219.5	245.4	276.6	300.6	325.7	367.5	412.1	468.6	529.7	629.4	749.6	890.2	1029.1	1173.2	1280.9
	GDP without oil	446.1	465.8	476.1	497.1	525.5	561.7	630.7	681.0	748.9	830.8	899.1	987.6	1077.3	1233.8	1423.8	1630.3	1885.6	2145.3	2304.2
	Oil	243.6	274.6	300.4	348.0	382.1	432.3	485.6	561.1	658.8	764.1	918.5	1057.9	1168.1	1333.3	1450.6	1441.6	1264.5	1384.6	1284.9
	GDP at factor cost	689.7	740.4	776.5	845.1	907.6	994.0	1116.3	1242.1	1407.7	1594.9	1817.6	2045.5	2245.4	2567.1	2874.4	3071.9	3150.1	3529.9	3589.1
	Net factor income from abroad	-46.9	-56.8	-58.7	-71.7	-83.3	-82.1	-102.5	-106.7	-124.0	-152.1	-181.4	-200.9	-179.5	-35.5	-35.6	-13.0	-38.6	-24.3	-7.1
	GNP at factor cost	642.8	683.6	717.8	773.4	824.3	911.9	1013.8	1135.4	1283.7	1442.8	1636.2	1844.6	2065.9	2531.6	2838.8	3058.9	3111.5	3505.6	3582.0
	Net indirect taxes	26.2	29.8	29.6	30.0	31.4	35.2	38.8	44.4	49.6	54.5	58.2	63.3	69.4	104.1	101.2	65.1	73.6	96.7	120.4
	GNP at market price	669.0	713.4	747.4	803.4	855.7	947.1	1052.6	1179.8	1333.3	1497.3	1694.4	1907.9	2135.3	2635.7	2940.0	3124.0	3185.1	3602.3	3702.4
	Terms of trade adjustment	-193.1	-212.2	-230.1	-259.9	-281.6	-317.5	-352.9	-405.7	-472.0	-532.1	-647.3	-734.4	-777.7	-884.1	-586.9	0.0	-39.6	97.0	157.1
	Gross national income	475.9	501.2	517.3	543.5	574.1	629.6	699.7	774.1	861.3	965.2	1047.1	1173.5	1357.6	1751.6	2353.1	3124.0	3145.5	3699.3	3859.5
	Depreciation of fixed capital	-30.7	-32.5	-33.5	-35.2	-37.3	-40.8	-45.5	-50.2	-55.9	-62.0	-67.0	-73.6	-80.3	-86.4	-99.7	-114.1	-132.0	-150.2	-161.3
	Net indirect taxes	-26.2	-29.8	-29.6	-30.0	-31.4	-35.2	-38.8	-44.4	-49.6	-54.5	-58.2	-63.3	-69.4	-104.1	-101.2	-65.1	-73.6	-96.7	-120.4
	Net national income	419.0	438.9	454.2	478.3	505.4	553.6	615.4	679.5	755.8	848.7	921.9	1036.6	1207.9	1561.1	2152.2	2944.8	2939.9	3452.4	3557.8
Indices	Agriculture	100.0	102.0	102.9	104.0	105.8	108.0	116.5	120.6	130.1	140.3	144.4	150.9	146.5	154.5	163.3	172.9	184.7	194.8	193.3
	Industry and mining	100.0	108.2	116.6	127.6	145.0	152.7	180.1	203.1	234.7	261.4	281.2	306.0	349.8	401.2	466.5	525.6	640.8	758.6	823.5
	Services	100.0	105.0	105.9	111.2	117.0	130.8	147.4	160.2	173.6	195.9	219.7	249.8	282.4	335.5	399.6	474.5	548.6	625.4	682.8
	GDP without oil	100.0	104.4	106.7	111.4	117.8	125.9	141.4	152.7	167.9	186.2	201.5	221.4	241.5	276.6	319.2	365.5	422.6	480.9	516.5
	Oil	100.0	112.7	123.3	142.9	156.9	177.5	199.3	230.3	270.4	313.7	377.1	434.3	479.5	547.3	595.5	591.8	519.1	568.4	527.5
	GDP at factor cost	100.0	107.4	112.6	122.5	131.6	144.1	161.9	180.1	204.1	231.2	263.5	296.6	325.6	372.2	416.8	445.4	456.7	511.8	520.4
	GNP at factor cost	100.0	106.3	111.7	120.3	128.2	141.9	157.7	176.6	199.7	224.5	254.5	287.0	321.4	393.8	441.6	475.9	484.1	545.4	557.2
	GNP at market price	100.0	106.6	111.7	120.1	127.9	141.6	157.3	176.4	199.3	233.8	253.3	285.2	319.2	394.0	439.5	467.0	476.1	538.5	553.4
	Gross national income	100.0	105.3	108.7	114.2	120.6	132.3	147.0	162.7	181.0	202.8	220.0	246.6	285.3	368.1	494.5	656.4	661.0	777.3	806.8
	Net national income	100.0	104.7	108.4	114.2	120.6	132.1	146.9	162.2	180.4	202.6	220.0	247.4	288.3	372.6	513.7	702.8	701.6	824.8	849.1
Distribution (%)	Agriculture	36.8	35.7	34.9	33.6	32.3	30.1	29.2	27.4	26.5	25.5	24.2	22.6	19.0	15.5	12.2	9.7	10.3	9.2	8.8
	Industry and mining	17.5	17.9	18.7	19.5	21.0	20.1	21.4	21.8	22.6	22.5	22.3	21.7	21.4	19.0	16.5	14.0	16.9	17.1	17.8
	Services	39.4	39.3	38.4	38.4	38.2	39.0	39.5	38.8	37.8	38.1	39.4	39.9	39.0	35.9	31.8	28.5	32.7	31.7	33.4
	GDP without oil	93.7	92.9	92.0	91.5	91.5	89.2	90.1	88.0	86.9	86.1	85.9	84.2	79.4	70.4	60.5	52.2	59.9	58.0	60.0
	Oil	51.2	54.8	58.1	64.0	66.6	68.7	69.4	72.5	76.5	79.2	87.7	90.1	86.0	76.1	61.6	46.1	40.2	37.4	33.5
	GDP at factor cost	144.9	147.7	150.1	155.5	158.1	157.9	159.5	169.5	163.4	165.3	173.6	174.3	165.4	146.5	122.1	98.3	100.1	95.4	93.5
	Net factor income from abroad	-9.8	-11.3	-11.5	-13.2	-14.5	-13.1	-14.6	-13.8	-14.4	-15.8	-17.3	-17.1	-13.2	-2.0	-1.5	-0.4	-1.2	-0.6	-0.2
	GNP at factor cost	135.1	136.4	138.8	142.3	143.6	144.8	144.9	146.7	149.0	149.5	156.3	157.2	152.2	144.5	120.6	97.9	98.9	94.8	93.3
	Net indirect taxes	5.5	5.9	5.7	5.5	5.5	5.6	5.5	5.7	5.8	5.6	5.5	5.4	5.1	6.0	4.3	2.1	2.3	2.6	3.1
	GNP at market price	140.6	142.3	144.5	147.8	149.1	150.4	150.4	152.4	154.8	155.1	161.8	162.6	157.3	150.5	124.9	100.0	101.2	97.4	96.4
	Terms of trade adjustment	-40.6	-42.3	-44.5	-47.8	-49.1	-50.4	-50.4	-52.4	-54.8	-55.1	-61.8	-62.6	-57.3	-50.5	-24.9	0.0	-1.2	2.6	3.6
	Gross national income	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Depreciation of fixed capital	-6.5	-6.5	-6.5	-6.5	-6.5	-6.5	-6.5	-6.5	-6.5	-6.4	-6.4	-6.3	-5.9	-4.9	-4.2	-3.6	-4.2	-4.1	-4.2
	Net indirect taxes	-5.5	-5.9	-5.7	-5.5	-5.5	-5.6	-5.5	-5.7	-5.8	-5.6	-5.5	-5.4	-5.1	-6.0	-4.3	-2.1	-2.3	-2.6	-3.1
	Net national income	88.0	87.6	87.8	88.0	88.0	87.9	88.0	87.8	87.7	88.0	88.1	88.3	89.0	89.1	91.5	94.3	93.5	93.3	92.7

Source: See section 2-1 .

GROSS NATIONAL PRODUCT OF IRAN, BY INDUSTRY
1338-1356
(1959/60-1977/8)

At current prices

	Iranian year / Gregorian year	1338 1959/60	1339 1960/1	1340 1961/2	1341 1962/3	1342 1963/4	1343 1964/5	1344 1965/6	1345 1966/7	1346 1967/8	1347 1968/9	1348 1969/70	1349 1970/1	1350 1971/2	1351 1972/3	1352 1973/4	1353 1974/5	1354 1975/6	1355 1976/7	1356 1977/8
GNP (Rls. 10^9)	Agriculture	85.4	90.9	92.7	96.9	98.4	110.6	120.0	121.7	128.4	139.6	147.8	160.6	172.7	201.8	234.4	303.3	333.9	426.5	485.0
	Industry and mining	45.3	51.1	53.3	58.1	65.3	72.8	86.1	95.5	111.8	130.3	150.3	168.1	199.1	247.2	352.4	436.8	617.8	887.2	1170.7
	Services	107.7	118.4	122.2	129.9	137.0	156.0	178.3	195.3	211.5	243.2	273.2	314.7	364.5	477.2	629.3	890.2	1141.5	1488.7	1894.1
	GDP without oil	238.4	260.4	268.2	284.9	300.7	339.4	384.4	412.5	451.7	513.1	571.3	643.4	736.3	926.2	1196.1	1630.3	2103.2	2802.2	3549.8
	Oil	47.1	51.5	55.5	64.4	70.7	72.8	82.7	96.1	86.3	100.1	119.4	140.7	212.6	264.0	387.5	1441.6	1375.8	1678.1	1658.0
	GDP at factor cost	285.5	311.9	323.7	349.3	371.4	412.2	467.1	508.6	538.0	613.2	690.7	784.1	948.9	1190.2	1783.6	3071.9	3479.0	4480.3	5207.8
	Net factor income from abroad	-19.8	-23.3	-23.7	-29.1	-33.9	-30.9	-39.2	-40.5	-20.6	-28.9	-33.9	-39.6	-46.1	-36.9	-35.9	-13.0	-42.3	-35.1	-45.7
	GNP at factor cost	265.7	288.6	300.0	320.2	337.5	381.3	427.9	468.1	517.4	584.3	656.8	744.5	902.8	1153.3	1747.7	3058.9	3436.7	4445.2	5162.1
	Net indirect taxes	18.2	20.5	19.6	20.2	22.8	23.9	28.5	35.5	39.1	45.6	51.2	57.4	65.4	78.2	85.0	65.1	82.1	126.3	185.5
	GNP at market price = GNI	283.9	309.1	319.6	340.4	360.3	405.2	456.4	503.6	556.5	629.9	708.0	801.9	968.2	1231.5	1832.7	3124.0	3518.8	4571.5	5347.6
	Depreciation of fixed capital	-19.8	-21.6	-22.4	-23.8	-25.2	-28.3	-31.9	-35.2	-34.4	-39.1	-43.6	-49.1	-56.1	-64.8	-83.7	-114.1	-147.2	-196.2	-248.5
	Net indirect taxes	-18.2	-20.5	-19.6	-20.2	-22.8	-23.9	-28.5	-35.5	-39.1	-45.6	-51.2	-57.4	-65.4	-78.2	-85.0	-65.1	-82.1	-126.3	-185.5
	Net national income	245.9	267.0	277.6	296.4	312.3	353.0	396.0	432.9	483.0	545.2	613.2	695.4	846.7	1088.5	1664.0	2944.8	3289.5	4249.0	4913.6
Indices	Agriculture	100.0	106.4	108.5	113.5	115.2	129.5	140.5	142.5	150.4	163.5	173.1	188.1	202.2	236.3	274.5	355.2	391.0	499.2	567.9
	Industry and mining	100.0	112.8	117.7	128.3	144.2	160.7	190.1	210.8	246.8	287.6	331.8	371.1	439.5	545.7	733.8	964.2	1363.8	1958.5	2584.3
	Services	100.0	109.9	113.5	120.6	127.2	144.8	165.6	181.7	196.4	225.8	253.7	292.2	338.4	443.1	584.3	826.6	1059.2	1382.3	1758.7
	GDP without oil	100.0	109.2	112.5	119.5	126.1	142.4	161.2	173.0	189.5	215.2	239.6	269.9	308.9	388.5	501.7	683.9	882.2	1175.4	1489.0
	Oil	100.0	109.3	117.8	136.7	150.1	154.6	175.6	204.0	183.2	212.5	253.5	298.7	451.4	560.5	1247.3	3060.7	2921.0	3562.8	3520.2
	GDP at factor cost	100.0	109.2	113.4	122.3	130.1	144.4	163.6	178.1	188.4	214.8	241.9	274.6	332.4	416.9	624.7	1076.0	1218.6	1569.3	1824.1
	GNP at factor cost	100.0	108.6	112.9	120.5	127.0	143.5	161.0	176.2	194.7	219.9	247.2	280.2	339.8	434.1	657.8	1151.3	1293.5	1673.0	1942.8
	GNP at market price = GNI	100.0	108.9	112.8	119.9	126.9	142.7	160.8	177.4	196.0	221.9	249.4	282.5	341.0	433.8	645.5	1100.4	1239.5	1610.3	1883.6
	Net national income	100.0	108.6	112.9	120.5	127.0	143.6	161.0	176.0	196.4	221.7	249.4	282.8	344.3	442.7	676.7	1197.6	1337.7	1727.9	1998.2
Distribution (%)	Agriculture	30.1	29.4	29.0	28.5	27.3	27.3	26.3	24.2	23.1	22.2	20.9	20.0	17.8	16.4	12.8	9.7	9.5	9.3	9.1
	Industry and mining	16.0	16.5	16.7	17.1	18.1	18.0	18.9	18.9	20.1	20.7	21.2	21.0	20.6	20.1	18.1	14.0	17.6	19.4	21.9
	Services	37.9	38.3	38.2	38.1	38.1	38.5	39.1	38.8	38.0	38.6	38.6	39.2	37.6	38.7	34.3	28.5	32.7	32.6	35.4
	GDP without oil	84.0	84.2	83.9	83.7	83.5	83.8	84.3	81.9	81.2	81.5	80.7	80.2	76.0	75.2	65.2	52.2	59.8	61.3	66.4
	Oil	16.6	16.7	17.4	18.9	19.6	17.9	18.1	19.1	15.5	15.9	16.9	17.5	22.0	21.4	32.1	46.1	39.1	36.7	31.0
	GDP at factor cost	100.6	100.9	101.3	102.6	103.1	101.7	102.4	101.0	96.7	97.4	97.6	97.7	98.0	96.6	97.3	98.3	98.9	98.0	97.4
	Net factor income from abroad	-7.0	-7.5	-7.4	-8.5	-9.4	-7.6	-8.6	-8.0	-3.7	-4.6	-4.8	-4.9	-4.8	-3.0	-1.9	-0.4	-1.2	-0.8	-0.9
	GNP at factor cost	93.6	93.4	93.9	94.1	93.7	94.1	93.8	93.0	93.0	92.8	92.8	92.8	93.2	93.6	95.4	97.9	97.7	97.2	96.5
	Net indirect taxes	6.4	6.6	6.1	5.9	6.3	5.9	6.2	7.0	7.0	7.2	7.2	7.2	6.8	6.4	4.6	2.1	2.3	2.8	3.5
	GNP at market price = GNI	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Depreciation of fixed capital	-7.0	-7.0	-7.0	-7.0	-7.0	-7.0	-7.0	-7.0	-6.2	-6.2	-6.2	-6.1	-5.8	-5.2	-4.6	-3.6	-4.2	-4.3	-4.6
	Net indirect taxes	-6.4	-6.6	-6.1	-5.9	-6.3	-5.9	-6.2	-7.0	-7.0	-7.2	-7.2	-7.2	-6.8	-6.4	-4.6	-2.1	-2.3	-2.8	-3.5
	Net national income	86.6	86.4	86.9	87.1	86.7	87.1	86.8	86.0	86.8	86.6	86.6	86.7	87.4	88.4	90.8	94.3	93.5	92.9	91.9

Source: See section 2-1 .

RATE OF INCREASE OF GROSS NATIONAL PRODUCT IN IRAN AND RELATIVE CONTRIBUTION OF DIFFERENT INDUSTRIES TOWARDS IT
1339-1356
(1960/1-1977/8)

	Iranian year Gregorian year	1339 1960/1	1340 1961/2	1341 1962/3	1342 1963/4	1343 1964/5	1344 1965/6	1345 1966/7	1346 1967/8	1347 1968/9	1348 1969/70	1349 1970/1	1350 1971/2	1351 1972/3	1352 1973/4	1353 1974/5	1354 1975/6	1355 1976/7	1356 1977/8
Growth rates at constant prices of 1353 (%)	Agriculture	2.0	0.9	1.1	1.7	2.1	7.9	3.5	7.8	7.8	2.9	4.5	-2.9	5.5	5.7	5.9	6.8	5.5	-0.8
	Industry and mining	8.2	7.8	9.4	13.7	5.3	18.0	12.8	15.5	11.4	7.6	8.8	14.3	14.7	16.3	12.7	21.9	18.4	8.6
	Services	5.0	0.9	5.0	5.2	11.8	12.7	8.7	8.3	12.8	12.1	13.7	13.0	18.6	19.1	18.8	15.6	14.0	9.2
	GDP without oil	4.4	2.2	4.4	5.7	6.9	12.3	8.0	10.0	10.9	8.2	9.8	9.1	14.5	15.4	14.5	15.7	13.8	7.4
	Oil	12.7	9.4	15.8	9.8	13.1	12.3	15.5	17.4	16.0	20.2	15.2	10.4	14.1	8.8	-0.6	-12.3	9.5	-7.2
	GDP at factor cost	7.4	4.9	8.8	7.4	9.5	12.3	11.3	13.3	13.0	14.0	12.5	9.8	14.3	12.0	6.9	2.5	12.1	1.7
	Net factor income from abroad	21.1	3.3	22.1	16.2	-1.4	24.8	4.1	16.2	22.7	19.3	10.7	-10.7	-80.2	0.3	-63.5	196.9	-37.0	-70.8
	GNP at factor cost	6.5	5.0	7.7	6.6	10.6	11.2	12.0	13.1	12.4	13.4	12.7	12.0	22.5	12.1	7.8	1.7	12.7	2.2
	Net indirect taxes	13.7	-0.7	1.4	4.7	12.1	10.2	14.4	11.7	9.9	6.8	8.8	9.6	50.0	-2.8	-35.7	13.1	31.4	24.5
	GNP at market price	6.6	4.8	7.5	6.5	10.7	11.1	12.1	13.0	12.3	13.2	12.6	11.9	23.4	11.5	6.3	2.0	13.1	2.8
	Terms of trade adjustment	9.9	8.4	13.0	8.5	12.7	11.1	15.0	16.3	12.7	21.7	13.5	5.9	13.7	-33.6	-100.0	Θ	-344.9	41.3
	Gross national income	5.3	3.2	5.1	5.6	9.7	11.1	10.6	11.3	12.1	8.5	12.1	15.7	29.0	34.3	32.8	0.7	17.6	5.8
	Depreciation of fixed capital	5.9	3.1	5.1	6.0	9.4	11.5	10.3	11.4	10.9	8.1	9.9	9.1	7.6	15.4	14.4	15.7	13.8	7.4
	Net national income	4.7	3.5	5.3	5.7	9.5	11.2	10.4	11.2	12.3	8.6	12.4	16.5	29.2	37.9	36.8	-0.2	17.4	5.1
Growth rates at Current prices (%)	Agriculture	6.4	2.0	4.5	1.5	12.4	8.5	1.4	5.5	8.7	5.9	8.7	7.5	16.9	16.2	29.5	10.1	27.7	13.8
	Industry and mining	12.8	4.3	9.0	12.4	11.5	18.3	10.9	17.1	16.5	15.3	11.8	18.4	24.2	34.5	31.4	41.4	43.6	32.0
	Services	9.9	3.2	6.3	5.5	13.9	14.3	9.5	8.3	15.0	12.3	15.2	15.8	30.9	31.9	41.5	29.4	29.3	27.2
	GDP without oil	9.2	3.0	6.2	5.5	12.9	13.3	7.3	9.5	13.6	11.3	12.6	14.4	25.8	29.1	36.3	29.0	33.2	26.7
	Oil	9.3	7.8	16.0	9.8	3.0	13.6	16.2	-10.2	16.0	19.3	17.8	51.1	24.2	122.5	145.4	-4.6	22.0	-1.2
	GDP at factor cost	9.2	3.8	7.9	6.3	11.0	13.3	8.9	5.8	14.0	12.6	13.5	21.0	25.4	49.9	72.2	13.3	28.8	16.2
	Net factor income from abroad	17.7	1.7	22.8	16.5	-8.8	26.9	3.3	-49.1	40.3	17.3	16.8	16.4	-20.0	-2.7	-63.8	225.4	-17.0	30.2
	GNP at factor cost	8.6	4.0	6.7	5.4	13.0	12 2	9.4	10.5	12.9	12.4	13.4	21.3	27.7	51.5	75.0	12.4	29.3	16.1
	Net indirect taxes	12.6	-4.4	3.1	12.9	4.8	19.2	24.6	10.1	16.6	12.3	12.1	13.9	19.6	8.7	-23.4	26.1	55.8	46.9
	GNP at market price = GNI	8.9	3.4	6.5	5.8	12.5	12.6	10.3	10.5	13.2	12.4	13.3	20.7	27.2	48.8	70.5	12.6	29.9	17.0
	Depreciation of fixed capital	9.1	3.7	6.3	5.9	12.3	12.7	10.3	-2.3	13.7	11.5	12.6	14.3	15.5	29.2	36.3	29.0	33.3	26.7
	Net national income	8.6	4.0	6.8	5.4	13.0	12.2	9.3	11.6	12.9	12.5	13.4	21.8	28.6	52.9	77.0	11.7	29.2	15.6
Growth shares at constant prices of 1353 (%)	Agriculture	0.7	0.3	0.4	0.6	0.7	2.4	1.0	2.2	2.1	0.7	1.1	-0.6	1.0	0.9	0.7	0.7	0.6	-0.1
	Industry and mining	1.4	1.4	1.8	2.7	1.1	3.6	2.7	3.4	2.6	1.7	2.0	3.1	3.1	3.1	2.1	3.1	3.1	1.5
	Services	2.0	0.3	1.9	2.0	4.5	4.9	3.4	3.2	4.9	4.6	5.4	5.2	7.3	6.8	6.0	4.4	4.6	2.9
	Oil	6.5	5.2	9.2	6.3	8.7	8.5	10.8	12.6	12.2	16.0	13.3	9.4	12.2	6.7	-0.4	-5.7	3.8	-2.7
	Net factor income from abroad	-2.1	-0.4	-2.5	-2.2	0.2	-3.3	-0.6	-2.2	-3.3	-3.0	-1.9	1.8	10.6	+	1.0	-0.8	0.5	0.5
	Net indirect taxes	0.8	+	0.1	0.2	0.7	0.6	0.8	0.7	0.6	0.4	0.5	0.5	2.6	-0.2	-1.5	0.3	0.7	0.6
	Terms of trade adjustment	-4.0	-3.6	-5.8	-4.0	-6.2	-5.6	-7.5	-8.6	-7.0	-11.9	-8.3	-3.7	-7.8	17.0	24.9	-1.3	4.3	1.1
	Gross national income	5.3	3.2	5.1	5.6	9.7	11.1	10.6	11.3	12.1	8.5	12.1	15.7	29.0	34.3	32.8	0.7	17.6	5.8
Growth shares at current prices (%)	Agriculture	1.9	0.6	1.3	0.4	3.4	2.3	0.4	1.3	2.0	1.3	1.8	1.5	3.0	2.6	3.8	1.0	2.6	1.3
	Industry and mining	2.0	0.7	1.5	2.1	2.1	3.3	2.1	3.2	3.3	3.2	2.5	3.9	5.0	6.9	5.7	5.8	7.7	6.2
	Services	3.8	1.2	2.4	2.1	5.3	5.5	3.7	3.2	5.7	4.7	5.9	6.2	11.6	12.3	14.2	8.3	9.6	8.9
	Oil	1.6	1.3	2.8	1.8	0.6	2.4	2.9	-1.9	2.5	3.1	3.0	8.9	5.3	26.3	46.6	-2.1	8.6	0.5
	Net factor income from abroad	-1.2	-0.1	-1.7	-1.4	0.8	-2.0	-0.3	4.0	-1.5	-0.8	-0.8	-0.8	1.0	0.1	1.3	-0.9	0.2	-0.2
	Net indirect taxes	0.8	-0.3	0.2	0.8	0.3	1.1	1.5	0.7	1.2	0.9	0.9	1.0	1.3	0.6	-1.1	0.5	1.2	1.3
	GNP = GNI	8.9	3.4	6.5	5.8	12.5	12.6	10.3	10.5	13.2	12.4	13.3	20.7	27.2	48.8	70.5	12.6	29.9	17.0

Source: See section 2-1 .

average annual rate of 14.1 percent, but also its share in the gross national product increased from 10.6 to 18.4 percent (Tables 10 and 11).

The gross domestic fixed capital formation grew by 9.1 percent per annum on average, but the change of its share in the gross national product was small, 21.1 percent at the beginning against 22.3 percent at the end of the period. Although the gross domestic fixed capital formation had an upward trend, it fluctuated through the years, especially in the private sector. These fluctuations were related to the general expectations of the future economic and political trends (Tables 12-15).

Inflation in the first period was under control and although inflationary pressures in the last three years of the period started to build up, they were very moderate. In this period the average annual rates of increase of the implicit price deflators in agriculture, industry and mining, and services were 2, 1.8 and 1.4 percent respectively, but because of the decrease in price of oil in the international market, 31.2 percent in the implicit price deflator for the whole period, the increase of the deflator of the gross national income was limited to an average of 1.2 percent per annum, while the implicit price deflator of the gross national product at factor cost decreased by 0.2 percent per annum (Table 16).

2-4 Second Period 1350-1351 (1971/2-1972/3)

Near the end of the first period the economy of Iran was working close to full employment and in particular the economic infrastructural facilities were being used very near to their full

GROSS NATIONAL INCOME OF IRAN, BY CATEGORY OF EXPENDITURE
1338-1356
(1959/60-1977/8)

At constant prices of 1353

	Iranian year Gregorian year	1338 1959/60	1339 1960/1	1340 1961/2	1341 1962/3	1342 1963/4	1343 1964/5	1344 1965/6	1345 1966/7	1346 1967/8	1347 1968/9	1348 1969/70	1349 1970/1	1350 1971/2	1351 1972/3	1352 1973/4	1353 1974/5	1354 1975/6	1355 1976/7	1356 1977/8
GNI (Rls. 10^9)	Private consumption expen.	362.9	384.2	387.5	404.9	419.5	455.2	473.4	531.5	573.5	645.3	606.2	774.2	773.4	880.5	1014.6	1127.8	1207.3	1242.9	1422.5
	Public consumption expen.	50.6	59.5	58.1	59.0	63.6	77.3	102.8	117.6	136.1	159.0	187.6	216.0	277.1	364.2	427.9	628.3	722.5	796.0	786.0
	Gross domestic fixed capital formation	100.2	105.6	104.6	94.0	105.2	120.2	160.9	167.4	215.1	238.7	247.9	261.9	331.8	410.5	456.6	562.0	923.6	1114.4	1152.6
	Net export of goods & services	109.9	131.9	224.7	380.5	441.7	410.1	455.1	467.5	467.5	522.6	633.5	726.9	845.9	949.3	1010.9	818.9	374.2	418.5	136.9
	Net factor income from abroad	-46.9	-56.8	-58.7	-71.7	-83.3	-82.1	-102.5	-106.7	-124.0	-152.1	-181.4	-200.9	-179.5	-35.5	-35.6	-13.0	-38.6	-24.3	-7.1
	Terms of trade adjustment	-193.1	-212.2	-230.1	-259.9	-281.6	-317.5	-352.9	-405.7	-472.0	-532.1	-647.3	-734.4	-777.7	-884.1	-586.9	0.0	-39.6	97.0	137.1
	Statistical discrepencies	92.3	89.0	31.2	-63.3	-91.0	-33.6	-37.1	2.5	65.1	83.8	120.6	129.8	86.6	66.9	65.6	0.0	-3.9	54.8	211.5
	Gross national expen. = GNI	475.9	501.2	517.3	543.5	574.1	629.6	699.7	774.1	861.3	965.2	1047.1	1173.5	1357.6	1751.6	2353.1	3124.0	3145.5	3699.3	3839.5
	National savings	62.4	57.5	71.7	79.6	91.0	97.1	123.5	125.0	151.7	160.9	173.3	183.3	307.1	507.1	910.6	1367.9	1215.7	1660.4	1631.0
Indices	Private consumption expen.	100.0	105.9	106.8	111.6	115.6	125.4	130.4	146.5	158.0	177.8	189.1	213.3	213.1	242.6	279.6	310.8	332.7	342.5	392.0
	Public consumption expen.	100.0	117.6	114.8	116.6	125.5	152.8	203.2	232.4	269.0	314.2	370.8	426.9	547.6	719.8	845.7	1241.7	1427.9	1573.1	1553.4
	Gross domestic fixed capital formation	100.0	105.4	104.4	93.8	105.0	120.0	160.6	167.1	214.7	238.2	247.4	261.4	331.1	409.7	455.7	560.9	921.8	1112.2	1150.3
	Net export of goods & services	100.0	120.0	204.5	346.2	401.9	373.2	414.1	425.4	425.4	475.5	576.4	661.4	769.7	836.8	919.8	745.1	340.5	380.8	124.6
	Gross national expen. = GNI	100.0	105.3	108.7	114.2	120.6	132.3	147.0	162.7	181.0	202.8	220.0	246.6	285.3	368.1	494.5	656.4	661.0	777.3	806.8
	National savings	100.0	92.1	114.9	127.6	145.8	155.6	197.9	200.3	243.1	257.9	277.7	293.8	492.1	812.7	1459.3	2192.1	1948.2	2660.9	2613.8
Distribution (%)	Private consumption expen.	76.3	76.6	74.9	74.5	73.1	72.3	67.6	68.7	66.6	66.9	65.5	66.0	57.0	50.3	43.1	36.1	40.3	38.4	37.0
	Public consumption expen.	10.6	11.9	11.2	10.9	11.1	12.3	14.7	15.2	15.8	16.5	17.9	18.4	20.4	20.8	18.2	20.1	22.5	23.0	20.5
	Gross domestic fixed capital formation	21.1	21.1	20.2	17.3	18.3	19.1	23.0	21.6	25.0	24.7	23.7	22.3	24.4	23.4	19.4	18.0	27.4	29.3	30.0
	Net export of goods & services	23.1	26.3	43.5	70.0	76.9	65.1	65.0	60.4	54.3	54.1	60.5	61.9	62.3	54.2	43.0	26.2	9.3	11.9	3.6
	Net factor income from abroad	-9.9	-11.3	-11.3	-13.2	-14.5	-13.1	-14.6	-13.8	-14.4	-15.8	-17.3	-17.1	-13.2	-2.0	-1.5	-0.4	-0.4	-1.2	-0.2
	Terms of trade adjustment	-40.6	-42.3	-44.5	-47.8	-49.1	-50.4	-50.4	-52.4	-54.8	-55.1	-61.8	-62.6	-57.3	-50.5	-25.0	0.0	-0.7	-1.3	3.6
	Statistical discrepencies	19.4	17.7	6.0	-11.7	-15.8	-5.3	-5.3	0.3	7.5	8.7	11.5	11.1	6.4	3.8	2.8	0.0	1.6	-0.1	5.5
	Gross national expen. = GNI	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	National savings	13.1	11.5	13.9	14.6	15.8	15.4	17.7	16.1	17.6	16.6	16.6	15.6	22.6	28.9	38.7	43.8	37.2	38.6	42.5
Growth rates (%)	Private consumption expen.	-	5.9	0.9	4.5	3.6	8.5	4.0	12.3	7.9	12.5	6.3	12.8	-0.1	13.8	15.3	11.2	7.0	2.9	14.5
	Public consumption expen.	-	17.6	-2.4	1.5	7.8	21.5	33.0	14.4	15.7	16.8	18.0	15.1	28.3	31.4	17.5	46.8	15.0	10.2	-1.3
	Gross domestic fixed capital formation	-	5.4	-0.9	-10.1	11.9	14.3	33.9	4.0	28.5	11.0	3.9	5.6	26.7	23.7	11.2	23.1	64.3	20.7	3.4
	Net export of goods & services	-	20.0	70.4	69.3	16.1	-7.2	11.0	2.7	0.0	11.8	21.2	14.7	16.4	12.2	6.5	-19.0	-54.3	11.8	-67.3
	Gross national expen. = GNI	-	5.3	3.2	5.1	5.6	9.7	11.1	10.6	11.3	12.1	8.5	12.1	15.7	29.0	34.3	32.8	0.7	17.6	3.8
	National savings	-	-7.9	24.7	11.0	14.3	6.7	27.2	1.2	21.4	6.1	7.7	5.8	67.5	65.1	79.6	50.2	-11.1	36.6	-1.8
Growth shares (%)	Private consumption expen.	-	4.5	0.7	3.4	2.7	6.2	2.9	8.3	5.4	8.3	4.2	8.4	+	7.9	7.7	4.8	2.6	1.1	4.9
	Public consumption expen.	-	1.9	-0.3	0.2	0.8	2.4	4.1	2.1	2.4	2.7	3.0	2.7	5.2	6.4	3.6	8.5	3.0	2.3	-0.3
	Gross domestic fixed capital formation	-	1.1	-0.2	-2.0	2.1	2.6	6.5	0.9	6.2	2.7	1.0	1.3	6.0	5.8	2.6	4.5	11.5	6.1	1.0
	Net export of goods & services	-	4.6	18.5	30.2	11.3	-5.5	7.1	1.8	0.0	6.4	11.5	8.9	10.1	7.6	3.5	-8.2	-14.2	1.4	-7.6
	Net factor income from abroad	-	-2.1	-0.4	-2.5	-2.2	0.2	-3.3	-0.6	-2.2	-3.3	-3.0	-1.9	1.8	10.6	+	1.0	-0.8	0.5	0.5
	Terms of trade adjustment	-	-4.0	-3.6	-5.8	-4.0	-6.2	-5.6	-7.5	-8.6	-7.0	-11.9	-8.3	-3.7	-7.8	17.0	25.0	-1.3	4.3	1.1
	Statistical discrepencies	-	-7.0	-11.5	-18.4	-5.1	10.0	-0.6	5.6	8.1	2.2	3.8	0.9	-3.7	-1.5	-0.1	-2.8	-0.1	1.9	4.2
	Gross national expen. = GNI	-	5.3	3.2	5.1	5.6	9.7	11.1	10.6	11.3	12.1	8.5	12.1	15.7	29.0	34.3	32.8	0.7	17.6	3.8
	National savings	-	-1.0	2.8	1.5	2.1	1.1	4.2	0.2	3.5	1.1	1.3	1.0	10.5	14.7	23.0	19.5	-4.9	14.2	-0.8
Ratios (%)	Savings/investment	62.3	54.5	68.5	84.7	86.5	80.8	76.8	74.7	70.5	67.4	69.9	70.0	92.6	123.5	199.4	243.4	131.6	149.0	141.5
	Investment/savings	160.6	183.7	145.9	118.1	115.6	123.8	130.3	133.9	141.8	148.4	143.0	142.9	108.0	81.0	50.1	41.1	76.0	67.1	70.7

Source: See section 2-1 .

GROSS NATIONAL INCOME OF IRAN, BY CATEGORY OF EXPENDITURE
1338-1356
(1959/60-1977/8)

At current prices

	Iranian year / Gregorian year	1338 1959/60	1339 1960/1	1340 1961/2	1341 1962/3	1342 1963/4	1343 1964/5	1344 1965/6	1345 1966/7	1346 1967/8	1347 1968/9	1348 1969/70	1349 1970/1	1350 1971/2	1351 1972/3	1352 1973/4	1353 1974/5	1354 1975/6	1355 1976/7	1356 1977/8
GNI (Rls. 10^9)	Private consumption expen.	209.2	230.4	236.0	252.3	262.1	294.7	312.5	348.6	373.9	427.2	470.7	537.3	566.9	686.6	879.7	1127.8	1316.0	1532.5	2160.8
	Public consumption expen.	30.3	32.5	34.1	35.4	40.3	49.9	65.9	74.8	85.9	101.2	121.2	141.6	189.4	252.6	325.4	628.3	807.4	1003.6	1073.8
	Gross domestic fixed capital formation	52.7	57.8	54.3	47.4	51.5	63.2	85.5	90.0	119.3	136.5	156.4	167.3	216.7	287.4	363.3	562.0	1065.6	1477.9	1831.9
	Net export of goods & services	11.5	11.7	18.9	34.4	40.3	28.3	31.7	30.7	-2.0	-6.1	-6.4	-4.7	41.3	41.8	300.2	818.9	372.1	592.6	326.8
	Net factor income from abroad	-19.8	-23.3	-23.7	-29.1	-33.9	-30.9	-39.2	-40.5	-20.6	-28.9	-33.9	-39.6	-46.1	-36.9	-35.9	-13.0	-42.3	-35.1	-45.7
	Gross national expen.=GNI=GNP	283.9	309.1	319.6	340.4	360.3	405.2	456.4	503.6	556.5	629.9	708.0	801.9	968.2	1231.5	1832.7	3124.0	3518.8	4571.5	5347.6
	National savings	44.4	46.2	49.5	52.7	57.9	60.6	78.0	80.2	96.7	101.5	116.1	123.0	211.9	292.3	627.6	1367.9	1395.4	2035.4	2113.0
Indices	Private consumption expen.	100.0	110.1	112.8	120.6	125.3	140.9	149.4	166.6	178.7	204.2	225.0	256.8	271.0	328.2	420.5	539.1	629.1	732.6	1032.9
	Public consumption expen.	100.0	107.3	112.5	116.8	133.0	164.7	217.5	246.9	283.5	334.0	400.0	467.3	715.2	948.5	1073.9	2073.6	2664.7	3312.2	3543.9
	Gross domestic fixed capital formation	100.0	109.7	103.0	89.9	97.7	119.9	162.2	170.8	226.4	259.0	296.8	317.5	411.2	545.4	689.4	1066.4	2022.0	2804.4	3476.1
	Net export of goods & services	100.0	101.7	164.3	229.1	350.4	246.1	275.7	267.0	-17.4	-53.0	-55.7	-40.9	359.1	363.5	2610.4	7120.9	3235.7	5153.0	2841.7
	Gross national expen.=GNI=GNP	100.0	108.9	112.8	119.9	126.9	142.7	160.8	177.4	196.0	221.9	249.4	282.5	341.0	435.0	645.5	1100.4	1239.5	1610.3	1883.6
	National savings	100.0	104.1	111.7	118.7	130.4	136.5	175.7	180.6	217.8	228.6	261.5	277.0	477.3	658.3	1413.5	3080.9	3142.8	4584.2	4759.0
Distribution (%)	Private consumption expen.	73.7	74.5	73.8	74.1	72.7	72.7	68.5	69.2	67.2	67.8	66.5	67.0	58.5	55.8	48.0	36.1	37.4	33.5	40.4
	Public consumption expen.	10.7	10.5	10.7	10.4	11.2	12.3	14.4	14.9	15.4	16.1	17.1	17.6	19.6	20.5	17.8	20.1	22.9	22.0	20.1
	Gross domestic fixed capital formation	18.6	18.7	17.0	13.9	14.3	15.6	18.7	17.8	21.4	21.7	22.1	20.9	22.4	23.3	19.8	18.0	30.3	32.3	34.3
	Net export of goods & services	4.0	3.8	5.9	10.1	11.2	7.0	7.0	6.1	-0.3	-1.0	-0.9	-0.6	4.3	3.4	16.4	26.2	10.6	13.0	6.1
	Net factor income from abroad	-7.0	-7.5	-7.4	-8.5	-9.4	-7.6	-8.6	-8.0	-3.7	-4.6	-4.8	-4.9	-4.8	-3.0	-2.0	-0.4	-1.2	-0.8	-0.9
	Gross national expen.=GNI=GNP	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	National savings	15.6	15.0	15.5	15.5	16.1	15.0	17.1	15.9	17.4	16.1	16.4	15.4	21.9	23.7	34.2	43.8	37.9	44.5	39.5
Growth rates (%)	Private consumption expen.	-	10.1	2.4	6.9	3.9	12.4	6.0	11.6	7.3	14.3	10.2	14.1	5.5	21.1	28.1	28.2	16.7	16.5	41.0
	Public consumption expen.	-	7.3	4.9	3.8	13.8	23.8	32.1	13.5	14.8	17.8	19.8	16.8	33.8	33.4	28.8	93.1	28.5	24.3	7.0
	Gross domestic fixed capital formation	-	9.7	-6.1	-12.7	8.6	22.7	35.3	5.3	32.6	14.4	14.6	7.0	29.5	32.6	26.4	54.7	89.6	38.7	24.0
	Net export of goods & services	-	1.7	61.5	82.0	17.2	-29.8	12.0	-3.2	-106.5	205.0	4.9	-26.6	-978.7	-20.0	618.2	172.8	-56.4	59.3	-44.9
	Gross national expen.=GNI=GNP	-	8.9	3.4	6.5	5.8	12.5	12.6	10.3	10.5	13.2	12.4	13.3	20.7	27.2	48.8	70.5	12.6	29.9	17.0
	National savings	-	4.1	7.1	6.5	9.9	4.7	28.7	2.8	20.6	5.0	14.4	5.9	72.3	37.9	114.7	118.0	2.0	45.9	3.8
Growth shares (%)	Private consumption expen.	-	7.5	1.8	5.1	2.9	9.0	4.4	7.9	5.0	9.6	6.9	9.4	3.7	12.4	15.7	13.6	6.0	6.1	13.8
	Public consumption expen.	-	0.8	0.5	0.4	1.4	2.7	3.9	1.9	2.2	2.7	3.2	2.9	5.9	6.5	5.9	16.5	5.7	5.6	1.5
	Gross domestic fixed capital formation	-	1.8	-1.1	-2.2	1.2	3.3	5.5	1.0	5.8	3.1	3.2	1.5	6.2	7.3	6.1	10.8	16.1	11.7	7.7
	Net export of goods & services	-	+	2.3	4.9	1.7	-3.3	0.8	-0.2	-6.5	-0.7	-0.1	0.3	5.7	0.1	21.0	28.3	-14.3	6.3	-5.8
	Net factor income from abroad	-	-1.2	-0.1	-1.7	-1.4	0.8	-2.0	-0.3	4.0	-1.5	-0.8	-0.8	-0.8	0.9	0.1	1.3	-0.9	0.2	-0.2
	Gross national expen.=GNI=GNP	-	8.9	3.4	6.5	5.8	12.5	12.6	10.3	10.5	13.2	12.4	13.3	20.7	27.2	48.8	70.5	12.6	29.9	17.0
	National savings	-	0.6	1.1	1.0	1.5	0.8	4.3	0.5	3.3	0.9	2.3	1.0	11.1	8.3	27.2	40.4	0.9	18.2	1.7
Ratios (%)	Savings/investments	84.3	79.9	91.2	111.2	112.4	95.9	91.2	89.1	81.1	74.4	74.2	73.5	97.8	101.7	172.7	243.4	130.9	137.7	115.3
	Investment/savings	118.7	125.1	109.7	89.9	88.9	104.3	109.6	112.2	123.4	134.5	134.7	136.0	102.3	98.3	57.9	41.1	76.4	72.6	86.7

Source: See section 2-1 .

GROSS DOMESTIC FIXED CAPITAL FORMATION IN IRAN AT MARKET PRICES, BY SECTOR AND FORM OF CAPITAL
1338-1356
(1959/60-1977/8)

At constant prices of 1353

			Iranian year Gregorian year	1338 1959/60	1339 1960/1	1340 1961/2	1341 1962/3	1342 1963/4	1343 1964/5	1344 1965/6	1345 1966/7	1346 1967/8	1347 1968/9	1348 1969/70	1349 1970/1	1350 1971/2	1351 1972/3	1352 1973/4	1353 1974/5	1354 1975/6	1355 1976/7	1356 1977/8
Gross domestic fixed capital formation (Rls. 10^9)	Private sector	Machinery		30.6	33.8	23.5	20.0	20.0	28.2	28.6	35.1	40.7	35.8	33.0	39.6	53.9	95.9	101.4	112.1	286.1	291.9	272.1
		Construction		30.0	36.7	41.5	38.9	42.2	48.0	55.4	58.3	66.7	67.4	63.8	64.7	83.4	103.0	98.9	113.1	165.3	217.9	233.3
		Total		60.6	70.5	65.0	58.9	62.2	76.2	84.0	93.4	107.4	103.2	96.8	104.3	137.3	198.9	200.3	225.2	451.4	509.8	505.4
	Public sector	Machinery		9.9	7.6	10.8	6.5	4.4	7.1	16.6	20.3	23.4	34.1	43.5	40.6	47.2	43.5	69.5	108.7	114.8	180.0	220.9
		Construction		29.7	27.5	28.8	28.6	38.6	36.9	60.3	53.7	84.3	101.4	107.6	117.0	147.3	168.1	186.8	228.1	357.4	424.6	426.3
		Total		39.6	35.1	39.6	35.1	43.0	44.0	76.9	74.0	107.7	135.5	151.1	157.6	194.5	211.6	256.3	336.8	472.2	604.6	647.2
	Grand total			100.2	105.6	104.6	94.0	105.2	120.2	160.9	167.4	215.1	238.7	247.9	261.9	331.8	410.5	456.6	562.0	923.6	1114.4	1152.6
	Total machinery			40.5	41.4	34.3	26.5	24.4	35.3	45.2	55.4	64.1	69.9	76.5	80.2	101.1	139.4	170.9	220.8	400.9	471.9	493.0
	Total construction			59.7	64.2	70.3	67.5	80.8	84.9	115.7	112.0	151.0	168.8	171.4	181.7	230.7	271.1	285.7	341.2	522.7	642.5	659.6
Indices	Private sector	Machinery		100.0	110.5	76.8	65.4	65.4	92.2	93.5	114.7	133.0	117.0	107.8	129.4	176.1	313.4	331.4	366.3	931.7	953.9	889.2
		Construction		100.0	122.3	138.3	129.7	140.7	160.0	184.7	194.3	222.3	224.7	212.7	215.7	278.0	343.3	329.7	377.0	551.0	726.3	777.7
		Total		100.0	116.3	107.3	97.2	102.6	125.7	138.6	154.1	177.2	170.3	159.7	172.1	226.6	328.2	330.5	371.6	744.9	841.3	834.0
	Public sector	Machinery		100.0	76.8	109.1	65.7	44.4	71.7	167.7	205.1	236.4	344.4	439.4	410.1	476.8	439.4	702.0	1098.0	1159.6	1818.2	2231.3
		Construction		100.0	92.6	97.0	96.3	130.0	124.2	203.0	180.8	283.8	341.4	362.3	393.9	496.0	566.0	629.0	768.0	1203.4	1429.6	1435.4
		Total		100.0	88.6	100.0	88.6	108.6	111.1	194.2	186.9	272.0	342.2	381.6	398.0	491.2	534.3	647.2	850.5	1192.4	1526.8	1634.3
	Grand total			100.0	105.4	104.4	93.8	105.0	120.0	160.6	167.1	214.7	238.2	247.4	261.4	331.1	409.7	455.7	560.9	921.8	1112.2	1150.3
	Total machinery			100.0	102.2	84.7	65.4	60.2	87.2	111.6	136.8	158.3	172.6	188.9	198.0	249.6	344.2	422.0	545.2	989.9	1165.2	1217.3
	Total construction			100.0	107.5	117.8	113.1	135.3	142.2	193.8	187.6	252.9	282.7	287.1	304.4	386.4	454.1	478.6	571.5	875.5	1076.2	1104.9
Distribution (%)	Private sector	Machinery		30.5	32.0	22.5	21.3	19.0	23.5	17.8	21.0	18.9	15.0	13.3	15.1	16.3	23.4	22.2	20.0	31.0	26.1	23.6
		Construction		30.0	34.8	39.6	41.4	40.1	39.9	34.4	34.8	31.0	28.2	25.7	24.7	25.1	25.1	21.7	20.1	17.9	19.6	20.2
		Total		60.5	66.8	62.1	62.7	59.1	63.4	52.2	55.8	49.9	43.2	39.0	39.8	41.4	48.5	43.9	40.1	48.9	45.7	43.8
	Public sector	Machinery		9.9	7.2	10.3	6.9	4.2	5.9	10.3	12.1	10.9	14.3	17.6	15.5	14.2	10.6	15.2	19.3	12.4	16.2	19.2
		Construction		29.6	26.0	27.6	30.4	36.7	30.7	37.5	32.1	39.2	42.5	43.4	44.7	44.4	40.9	40.9	40.6	38.7	38.1	37.0
		Total		39.5	33.2	37.9	37.3	40.9	36.6	47.8	44.2	50.1	56.8	61.0	60.2	58.6	51.5	56.1	59.9	51.1	54.3	56.2
	Grand total			100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Total machinery			40.4	39.2	32.8	28.2	23.2	29.4	28.1	33.1	29.8	29.3	30.9	30.6	30.5	34.0	37.4	39.3	43.4	42.3	42.8
	Total construction			59.6	60.8	67.2	71.8	76.8	70.6	71.9	66.9	70.2	70.7	69.1	69.4	69.5	66.0	62.6	60.7	56.6	57.7	57.2
Growth rates (%)	Private sector	Machinery		-	10.5	-30.5	-14.9	0.0	41.0	1.4	22.7	16.0	-12.0	-7.8	20.0	36.1	77.9	5.7	10.6	154.3	2.0	-6.8
		Construction		-	22.3	13.1	-6.3	8.5	13.7	15.4	5.2	14.4	1.0	-5.3	1.4	28.9	23.5	-4.0	14.4	46.2	31.8	7.1
		Total		-	16.3	-7.8	-9.4	5.6	22.5	10.2	11.2	15.0	-3.9	-6.2	7.7	31.6	44.9	0.7	12.4	100.4	12.9	-0.9
	Public sector	Machinery		-	-23.2	42.1	-39.8	-32.3	61.4	133.8	22.3	15.3	45.7	27.6	-6.7	16.3	-7.8	59.8	56.4	5.6	56.8	22.7
		Construction		-	-7.4	4.7	-0.7	35.0	-4.4	63.4	-10.9	57.0	20.3	6.1	8.7	25.9	14.1	11.1	22.1	56.7	18.8	0.4
		Total		-	-11.4	12.8	-11.4	22.5	2.3	74.8	-3.8	45.5	25.8	11.5	4.3	23.4	8.8	21.1	31.4	40.2	28.0	7.0
	Grand total			-	5.4	-0.9	-10.1	11.9	14.3	33.9	4.0	28.5	11.0	3.9	5.6	26.7	23.7	11.2	23.1	64.3	20.7	3.4
	Total machinery			-	2.2	-17.1	-22.7	-7.9	44.7	28.0	22.6	15.7	9.0	9.4	4.8	26.1	37.9	22.6	29.2	81.6	17.7	4.5
	Total construction			-	7.5	9.5	-4.0	19.7	5.1	36.3	-3.2	34.8	11.8	1.5	6.0	27.0	17.5	5.4	19.4	53.2	22.9	2.7

Source: See section 2-1 .

GROSS DOMESTIC FIXED CAPITAL FORMATION IN IRAN AT MARKET PRICES, BY SECTOR AND FORM OF CAPITAL
1338-1356
(1959/60-1977/8)

At current prices

			Iranian year	1338	1339	1340	1341	1342	1343	1344	1345	1346	1347	1348	1349	1350	1351	1352	1353	1354	1355	1356
			Gregorian year	1959/60	1960/1	1961/2	1962/3	1963/4	1964/5	1965/6	1966/7	1967/8	1968/9	1969/70	1970/1	1971/2	1972/3	1973/4	1974/5	1975/6	1976/7	1977/8
Gross domestic fixed capital formation (Rls. 10^9)	Private sector	Machinery		16.1	18.3	13.0	11.2	11.3	16.2	16.5	20.3	29.8	26.3	25.0	29.4	46.2	77.7	83.1	112.1	331.5	355.2	353.0
		Construction		15.8	20.5	21.3	19.0	19.8	24.4	28.5	30.2	31.9	34.1	36.6	37.3	49.0	66.3	77.3	113.1	190.1	307.8	423.8
		Total		31.9	38.8	34.3	30.2	31.1	40.6	45.0	50.5	61.7	60.4	61.6	66.7	95.2	144.0	160.4	225.2	521.6	663.0	776.8
	Public sector	Machinery		5.2	4.1	5.9	3.6	2.5	4.1	9.8	12.0	17.1	25.0	32.7	32.8	35.9	35.2	57.0	108.7	133.1	219.1	286.7
		Construction		15.6	14.9	14.1	13.6	17.9	18.5	30.7	27.5	40.5	51.1	62.1	67.8	85.6	108.2	145.9	228.1	410.9	595.8	768.4
		Total		20.8	19.0	20.0	17.2	20.4	22.6	40.5	39.5	57.6	76.1	94.8	100.6	121.5	143.4	202.9	336.8	544.0	814.9	1055.1
	Grand total			52.7	57.8	54.3	47.4	51.5	63.2	85.5	90.0	119.3	136.5	156.4	167.3	216.7	287.4	363.3	562.0	1065.6	1477.9	1831.9
	Total machinery			21.3	22.4	18.9	14.8	13.8	20.3	26.3	32.3	46.9	51.3	57.7	62.2	82.1	112.9	140.1	220.8	464.6	574.3	639.7
	Total construction			31.4	35.4	35.4	32.6	37.7	42.9	59.2	57.7	72.4	85.2	98.7	105.1	134.6	174.5	223.2	341.2	601.0	903.6	1192.2
Indices	Private sector	Machinery		100.0	113.7	80.7	69.6	70.2	100.6	102.5	126.1	185.1	163.4	155.3	182.6	287.0	482.6	516.1	696.3	2059.0	2206.2	2192.5
		Construction		100.0	129.7	134.8	120.5	125.3	154.4	180.4	191.1	201.9	215.8	231.6	236.1	310.1	419.6	489.2	715.8	1203.2	1948.1	2682.3
		Total		100.0	121.6	107.5	94.7	97.5	127.3	141.1	158.3	193.4	189.3	193.1	209.1	298.4	451.4	502.8	706.0	1635.1	2078.4	2435.1
	Public sector	Machinery		100.0	78.8	113.5	69.2	48.1	78.8	188.5	230.8	328.8	480.8	628.8	630.8	690.4	676.9	1095.2	2090.4	2559.6	4213.5	5513.5
		Construction		100.0	95.5	90.4	87.2	114.7	118.6	196.8	176.3	259.6	327.6	398.1	434.6	548.7	693.6	935.3	1462.2	2634.0	3819.2	4925.6
		Total		100.0	91.3	96.2	82.7	98.1	108.7	194.7	189.9	276.9	365.9	455.8	483.7	584.1	689.4	975.5	1619.2	2615.4	3917.8	5072.6
	Grand total			100.0	109.7	103.0	89.9	97.7	119.9	162.2	170.8	226.4	259.0	296.8	317.5	411.2	545.4	689.4	1066.4	2022.0	2804.4	3476.1
	Total machinery			100.0	105.2	88.7	69.5	64.8	95.3	123.5	151.6	220.2	240.8	270.9	292.0	385.4	530.0	657.7	1036.6	2181.2	2696.2	3003.3
	Total construction			100.0	112.7	112.7	103.8	120.1	136.6	188.5	183.8	230.6	271.3	314.3	334.7	428.7	555.7	710.8	1086.6	1914.0	2877.7	3796.8
Distribution (%)	Private sector	Machinery		30.5	31.7	24.0	23.6	22.0	25.6	19.3	22.6	25.0	19.2	16.0	17.6	21.3	27.0	22.9	20.0	31.1	24.1	19.3
		Construction		30.0	35.4	39.2	40.1	38.4	38.6	33.3	33.5	26.7	25.0	23.4	22.3	22.6	23.1	21.3	20.1	17.8	20.8	23.1
		Total		60.5	67.1	63.2	63.7	60.4	64.2	52.6	56.1	51.7	44.2	39.4	39.9	43.9	50.1	44.2	40.1	48.9	44.9	42.4
	Public sector	Machinery		9.9	7.1	10.8	7.6	4.8	6.5	11.5	13.3	14.3	18.4	20.9	19.6	16.6	12.3	15.7	19.3	12.5	14.8	15.6
		Construction		29.6	25.8	26.0	28.7	34.8	29.3	35.9	30.6	34.0	37.4	39.7	40.5	39.5	37.6	40.1	40.6	38.6	40.3	42.0
		Total		39.5	32.9	36.8	36.3	39.6	35.8	47.4	43.9	48.3	55.8	60.6	60.1	56.1	49.9	55.8	59.9	51.1	55.1	57.6
	Grand total			100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Total machinery			40.4	38.8	34.8	31.2	26.8	32.1	30.8	35.9	39.3	37.6	36.9	37.2	37.9	39.3	38.6	39.3	43.6	38.9	34.9
	Total construction			59.6	61.2	65.2	68.8	73.2	67.9	69.2	64.1	60.7	62.4	63.1	62.8	62.1	60.7	61.4	60.7	56.4	61.1	65.1
Growth rates (%)	Private sector	Machinery		-	13.7	-29.0	-13.8	0.9	43.4	1.9	23.0	46.8	-11.7	-4.9	17.6	57.1	68.2	6.9	34.9	195.7	7.1	-0.6
		Construction		-	29.7	3.9	-10.8	4.2	23.2	16.8	6.0	5.6	6.9	7.3	1.9	31.4	35.3	16.6	46.3	68.1	61.9	37.7
		Total		-	21.6	-11.6	-12.0	3.0	36.5	10.8	12.2	22.2	-2.1	2.0	8.3	42.7	51.3	11.4	40.4	131.6	27.1	17.2
	Public sector	Machinery		-	-21.2	43.9	-39.0	-30.6	64.0	139.0	22.4	42.5	46.2	30.8	0.3	9.5	-1.9	61.9	90.7	22.4	64.6	30.9
		Construction		-	-4.5	-5.4	-3.5	31.6	3.4	65.9	-10.4	47.3	26.2	21.5	9.2	26.3	26.4	34.8	56.3	80.1	45.0	29.0
		Total		-	-8.7	5.3	-14.0	18.6	10.8	79.2	-2.5	45.8	32.1	24.6	6.1	20.8	18.0	41.5	66.0	61.5	49.8	29.5
	Grand total			-	9.7	-6.1	-12.7	8.6	22.7	35.3	5.3	32.6	14.4	14.6	7.0	29.5	32.6	26.4	54.7	89.6	38.7	24.0
	Total machinery			-	5.2	-15.6	-21.7	-6.8	47.1	29.6	22.8	45.2	9.4	12.5	7.8	32.0	37.5	24.1	57.6	110.4	23.6	11.4
	Total construction			-	12.7	0.0	-7.9	15.6	13.8	38.0	-2.5	25.5	17.7	15.8	6.5	28.1	29.6	27.9	52.9	76.1	50.3	31.9

Source: See section 2-1 .

GROSS DOMESTIC FIXED CAPITAL FORMATION IN IRAN AT MARKET PRICES, BY INDUSTRY
1338-1356
(1959/60-1977/8)

At constant prices of 1353

	Iranian year / Gregorian year		1338 1959/60	1339 1960/1	1340 1961/2	1341 1962/3	1342 1963/4	1343 1964/5	1344 1965/6	1345 1966/7	1346 1967/8	1347 1968/9	1348 1969/70	1349 1970/1	1350 1971/2	1351 1972/3	1352 1973/4	1353 1974/5	1354 1975/6	1355 1976/7	1356 1977/8
Gross domestic fixed capital formation (Rls. 10⁹)	Agriculture	Machinery	3.4	5.3	5.3	4.6	4.0	6.8	5.1	6.1	5.4	5.2	6.5	5.3	6.0	15.6	13.5	18.7	35.0	29.9	21.2
		Construction	-	-	-	-	-	-	5.3	3.8	9.4	9.7	9.9	11.5	17.5	19.3	21.7	24.0	34.2	40.7	28.4
		Total	-	-	-	-	-	-	10.4	9.9	14.8	14.9	16.4	16.8	23.5	34.9	35.2	42.7	69.2	70.6	49.6
	Industry & mining	Machinery	20.2	20.5	17.4	10.9	8.4	11.2	19.0	23.8	27.6	29.9	32.3	33.7	47.0	61.9	77.0	86.6	154.7	188.9	210.2
		Construction	-	-	-	-	-	-	81.7	81.4	108.6	123.6	123.7	124.3	153.7	183.3	184.1	242.9	375.8	257.2	281.2
		Total	-	-	-	-	-	-	100.7	105.2	136.2	153.5	156.0	158.0	200.7	245.2	261.1	329.5	530.5	446.1	491.4
	Services	Machinery	16.9	15.6	11.6	11.0	12.0	17.3	21.1	25.5	31.1	34.8	37.7	41.2	48.1	61.9	80.4	115.5	211.2	253.1	261.6
		Construction	-	-	-	-	-	-	28.7	26.8	33.0	35.5	37.8	45.9	59.5	68.5	79.9	74.3	112.7	344.6	350.0
		Total	-	-	-	-	-	-	49.8	52.3	64.1	70.3	75.5	87.1	107.6	130.4	160.3	189.8	323.9	597.7	611.6
	Grand total		100.2	105.6	104.6	94.0	105.2	120.2	160.9	167.4	215.1	238.7	247.9	261.9	331.8	410.5	456.6	562.0	923.6	1114.4	1152.6
Indices (1344=100)	Agriculture	Machinery	66.7	103.9	103.9	90.2	78.4	133.3	100.0	119.6	105.7	102.0	127.5	103.9	117.6	305.9	264.7	366.7	686.3	586.3	415.7
		Construction	-	-	-	-	-	-	100.0	71.7	177.4	183.0	186.8	217.0	330.2	364.2	409.4	452.8	645.3	767.9	535.8
		Total	-	-	-	-	-	-	100.0	95.2	142.3	143.3	157.7	161.5	226.0	335.6	338.5	410.6	665.4	678.8	476.9
	Industry & mining	Machinery	106.3	107.9	91.6	57.4	44.2	58.9	100.0	125.3	145.3	157.4	170.0	177.4	253.2	325.8	405.3	455.8	814.2	994.2	1106.3
		Construction	-	-	-	-	-	-	100.0	99.6	132.9	151.3	151.4	152.1	188.1	224.4	225.3	297.3	460.0	314.8	344.2
		Total	-	-	-	-	-	-	100.0	104.5	135.3	152.4	154.9	156.9	199.3	243.5	259.3	327.2	526.8	443.0	488.0
	Services	Machinery	80.1	73.9	55.0	52.1	56.9	82.0	100.0	120.9	147.4	164.9	178.7	195.3	228.0	293.4	381.0	547.4	1000.9	1199.5	1239.8
		Construction	-	-	-	-	-	-	100.0	93.4	115.0	123.7	131.7	159.9	207.3	238.7	278.4	258.9	392.7	1200.7	1219.5
		Total	-	-	-	-	-	-	100.0	105.0	128.7	141.2	151.6	174.9	216.1	261.8	321.9	381.1	650.4	1200.2	1228.1
	Grand total		62.3	65.6	65.0	58.4	65.4	74.7	100.0	104.0	133.7	148.4	154.1	162.8	206.2	255.1	283.8	349.3	574.0	692.6	716.3
Distribution (%)	Agriculture	Machinery	3.4	5.0	5.1	4.9	3.8	5.7	3.2	3.6	2.5	2.2	2.6	2.0	1.8	3.8	3.0	3.3	3.8	2.7	1.8
		Construction	-	-	-	-	-	-	3.3	2.3	4.4	4.0	4.0	4.4	5.3	4.7	4.7	4.3	3.7	3.7	2.5
		Total	-	-	-	-	-	-	6.5	5.9	6.9	6.2	6.6	6.4	7.1	8.5	7.7	7.6	7.5	6.4	4.3
	Industry & mining	Machinery	20.2	19.4	16.6	11.6	8.0	9.3	11.8	14.2	12.8	12.5	13.0	12.9	14.2	15.1	16.9	15.4	16.7	16.9	18.2
		Construction	-	-	-	-	-	-	50.8	48.7	50.5	51.8	49.9	47.5	46.3	44.6	40.3	43.2	40.7	23.1	24.4
		Total	-	-	-	-	-	-	62.6	62.9	63.3	64.3	62.9	60.4	60.5	59.7	57.2	58.6	57.4	40.0	42.6
	Services	Machinery	16.9	14.8	11.1	11.7	11.4	14.4	13.1	15.2	14.5	14.6	15.2	15.7	14.5	15.1	17.6	20.6	22.9	22.7	22.7
		Construction	-	-	-	-	-	-	17.8	16.0	15.3	14.9	15.3	17.5	17.9	16.7	17.5	13.2	12.2	30.9	30.4
		Total	-	-	-	-	-	-	30.9	31.2	29.8	29.5	30.5	33.2	32.4	31.8	35.1	33.8	35.1	53.6	53.1
	Grand total		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Growth rates (%)	Agriculture	Machinery	-	55.9	0.0	-13.2	-13.0	70.0	-25.0	19.6	-11.5	-3.7	25.0	-18.5	13.2	160.0	-13.5	38.5	87.2	-14.6	-29.1
		Construction	-	-	-	-	-	-	-	-28.3	147.4	3.2	2.1	16.2	52.2	10.3	12.4	10.6	42.5	19.0	-30.2
		Total	-	-	-	-	-	-	-	-4.8	49.5	0.7	10.1	2.4	39.9	48.5	0.9	21.3	62.1	2.0	-29.7
	Industry & mining	Machinery	-	1.5	-15.1	-37.4	-22.9	33.3	69.6	25.3	16.0	8.3	8.0	4.3	39.5	31.7	24.4	12.5	78.6	22.1	11.3
		Construction	-	-	-	-	-	-	-	-0.4	33.4	13.8	0.1	0.5	23.7	19.3	0.4	31.9	54.7	-31.6	9.3
		Total	-	-	-	-	-	-	-	4.5	29.5	12.7	1.6	1.3	27.0	22.2	6.5	26.2	61.0	-15.9	10.2
	Services	Machinery	-	-7.7	-25.6	-5.2	9.1	44.2	22.0	20.9	22.0	11.9	8.3	9.3	16.7	28.7	29.9	43.7	82.9	19.8	3.4
		Construction	-	-	-	-	-	-	-	-6.6	23.1	7.6	6.5	21.4	29.6	15.1	16.6	-7.0	51.7	205.8	1.6
		Total	-	-	-	-	-	-	-	5.0	22.6	9.7	7.4	15.4	23.5	21.2	22.9	18.0	70.7	84.5	2.3
	Grand total		-	5.4	-0.9	-10.1	11.9	14.3	33.9	4.0	28.5	11.0	3.9	5.6	26.7	23.7	11.2	23.1	64.3	20.7	3.4

Source: See section 2-1 .

GROSS DOMESTIC FIXED CAPITAL FORMATION IN IRAN AT MARKET PRICES, BY INDUSTRY
1338-1356
(1959/60-1977/8)

At current prices

			Iranian year / Gregorian year	1338 1959/60	1339 1960/1	1340 1961/2	1341 1962/3	1342 1963/4	1343 1964/5	1344 1965/6	1345 1966/7	1346 1967/8	1347 1968/9	1348 1969/70	1349 1970/1	1350 1971/2	1351 1972/3	1352 1973/4	1353 1974/5	1354 1975/6	1355 1976/7	1356 1977/8
Gross domestic fixed capital formation (Rls. 10^9)	Agriculture	Machinery		1.8	2.9	2.9	2.6	2.3	4.0	3.0	3.7	4.0	3.8	4.9	4.1	4.9	12.7	11.4	18.7	37.4	36.4	29.0
		Construction		-	-	-	-	-	-	2.7	1.9	4.5	4.9	5.7	6.7	10.2	12.4	17.0	24.0	39.3	57.3	54.0
		Total		-	-	-	-	-	-	5.7	5.6	8.5	8.7	10.6	10.8	15.1	25.1	28.4	42.7	76.7	93.7	83.0
	Industry & mining	Machinery		10.6	11.1	9.6	6.1	4.7	6.4	11.2	14.1	20.2	21.9	24.3	26.1	38.2	49.3	61.2	86.6	191.7	229.9	235.2
		Construction		-	-	-	-	-	-	41.8	41.9	52.0	62.4	71.1	71.8	89.8	118.1	143.8	242.9	432.2	361.7	438.3
		Total		-	-	-	-	-	-	53.0	56.0	72.2	84.3	95.4	97.7	128.0	167.4	205.0	329.5	623.9	591.6	673.5
	Services	Machinery		8.9	8.4	6.4	6.1	6.8	9.9	12.1	14.5	22.7	25.6	28.5	32.0	39.0	50.9	67.5	115.5	235.5	308.0	375.5
		Construction		-	-	-	-	-	-	14.7	13.9	15.9	17.9	21.9	26.6	34.6	44.0	62.4	74.3	129.0	484.6	699.8
		Total		-	-	-	-	-	-	26.8	28.4	38.6	43.5	50.4	58.6	73.6	94.9	129.9	189.8	365.0	792.6	1075.3
	Grand total			52.7	57.8	54.3	47.4	51.5	63.2	85.5	90.0	119.3	136.5	156.4	167.3	216.7	287.4	363.3	562.0	1065.6	1477.9	1831.9
Indices (1344=100)	Agriculture	Machinery		60.0	96.7	96.7	86.7	76.7	133.3	100.0	123.3	133.3	126.7	163.3	136.7	163.3	423.3	380.0	623.3	1246.7	1213.3	966.7
		Construction		-	-	-	-	-	-	100.0	70.4	166.7	181.5	211.1	248.1	377.8	459.3	629.6	888.9	1455.6	2122.2	2000.0
		Total		-	-	-	-	-	-	100.0	98.2	149.1	152.6	186.0	189.5	264.9	440.4	498.2	749.1	1345.6	1643.9	1456.1
	Industry & mining	Machinery		94.6	99.1	85.7	54.5	42.0	57.1	100.0	125.9	180.4	195.5	217.0	233.0	341.1	440.2	546.4	773.2	1711.6	2052.7	2100.0
		Construction		-	-	-	-	-	-	100.0	100.2	124.4	149.3	170.1	171.8	215.1	282.5	344.0	581.1	1034.0	865.3	1048.6
		Total		-	-	-	-	-	-	100.0	105.7	136.2	159.1	180.0	184.7	241.5	315.8	386.8	621.7	1177.2	1116.7	1270.8
	Services	Machinery		73.6	69.4	52.9	50.4	56.2	81.8	100.0	119.8	187.6	211.6	235.5	264.5	322.3	420.7	557.9	954.5	1946.3	2545.5	3103.3
		Construction		-	-	-	-	-	-	100.0	94.6	108.2	121.8	149.0	181.0	235.4	299.3	424.5	505.4	877.6	3296.6	4760.5
		Total		-	-	-	-	-	-	100.0	106.0	144.0	162.3	188.1	218.7	274.6	354.1	484.7	708.2	1361.9	2957.5	4012.3
	Grand total			61.6	67.6	63.5	55.4	60.2	73.9	100.0	105.3	139.5	159.6	182.9	195.7	253.5	336.1	424.9	657.3	1246.3	1728.5	2142.6
Distribution (%)	Agriculture	Machinery		3.4	5.0	5.3	5.5	4.5	6.3	3.5	4.1	3.3	2.8	3.1	2.5	2.3	4.4	3.1	3.3	3.5	2.5	1.6
		Construction		-	-	-	-	-	-	3.2	2.1	3.8	3.6	3.7	4.0	4.7	4.3	4.7	4.3	3.7	3.9	2.9
		Total		-	-	-	-	-	-	6.7	6.2	7.1	6.4	6.8	6.5	7.0	8.7	7.8	7.6	7.2	6.4	4.5
	Industry & mining	Machinery		20.1	19.2	17.7	12.9	9.1	10.1	13.1	15.7	16.9	16.0	15.5	15.6	17.6	17.2	16.8	15.4	18.0	15.5	12.9
		Construction		-	-	-	-	-	-	48.9	46.5	43.6	45.7	45.5	42.9	41.4	41.1	39.6	43.2	40.6	24.5	23.9
		Total		-	-	-	-	-	-	62.0	62.2	60.5	61.7	61.0	58.5	59.0	58.3	56.4	58.6	58.6	40.0	36.8
	Services	Machinery		16.9	14.5	11.8	12.9	13.2	15.7	14.1	16.1	19.0	18.8	18.2	19.1	18.0	17.7	18.6	20.6	22.1	20.8	20.5
		Construction		-	-	-	-	-	-	17.2	15.5	13.4	13.1	14.0	15.9	16.0	15.3	17.2	13.2	12.1	32.8	38.2
		Total		-	-	-	-	-	-	31.3	31.6	32.4	31.9	32.2	35.0	34.0	33.0	35.8	33.8	34.2	53.6	58.7
	Grand total			100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Growth rates (%)	Agriculture	Machinery		-	61.1	0.0	-10.3	-11.5	73.9	-25.0	23.3	8.1	-5.0	28.9	-16.3	19.5	159.2	-10.2	64.0	100.0	-2.7	-20.3
		Construction		-	-	-	-	-	-	-	-29.6	136.8	8.9	16.3	17.5	52.2	21.6	37.1	41.2	63.8	45.8	-5.8
		Total		-	-	-	-	-	-	-	-1.8	51.8	2.4	21.8	1.9	39.8	66.2	13.1	50.4	79.6	22.2	-11.4
	Industry & mining	Machinery		-	4.7	-13.5	-36.5	-23.0	36.2	75.0	25.9	43.3	8.4	11.0	7.4	46.4	29.1	24.1	41.5	121.4	19.9	2.3
		Construction		-	-	-	-	-	-	-	0.2	24.1	20.0	13.9	1.0	25.2	31.5	21.8	68.9	77.9	-16.3	21.2
		Total		-	-	-	-	-	-	-	5.7	28.9	16.8	13.2	2.6	30.7	30.8	22.5	60.7	89.3	-5.2	13.8
	Services	Machinery		-	-5.6	-23.8	-4.7	11.5	45.6	22.2	19.8	56.6	12.8	11.3	12.3	21.9	30.5	32.6	71.1	103.9	30.8	21.9
		Construction		-	-	-	-	-	-	-	-5.4	14.4	12.6	22.3	21.5	30.1	27.2	41.8	19.1	73.6	275.7	44.4
		Total		-	-	-	-	-	-	-	6.0	35.9	13.0	15.9	16.3	25.6	28.9	36.9	46.1	92.3	117.2	35.7
	Grand total			-	9.7	-6.1	-12.7	8.6	22.7	35.3	5.3	32.6	14.4	14.6	7.0	29.5	32.6	26.4	54.7	89.6	38.7	24.0

Source: See section 2-1 .

IMPLICIT PRICE DEFLATORS IN IRAN
1338-1356
(1959/60-1977/8)

Iranian year Gregorian year	1338 1959/60	1339 1960/1	1340 1961/2	1341 1962/3	1342 1963/4	1343 1964/5	1344 1965/6	1345 1966/7	1346 1967/8	1347 1968/9	1348 1969/70	1349 1970/1	1350 1971/2	1351 1972/3	1352 1973/4	1353 1974/5	1354 1975/6	1355 1976/7	1356 1977/8
Agriculture	100.0	104.3	105.4	109.1	108.9	119.9	120.6	118.2	115.6	116.5	119.9	124.7	138.0	152.9	168.1	205.4	211.7	256.3	293.8
Industry and mining	100.0	104.3	100.9	100.5	99.4	105.2	105.6	103.8	105.2	110.0	118.0	121.3	125.6	136.0	157.3	183.4	212.8	258.2	313.8
Services	100.0	104.7	107.2	108.5	108.7	110.7	112.3	113.4	113.1	115.3	115.5	117.0	119.8	132.1	146.2	174.2	194.9	221.0	257.6
GDP without oil	100.0	104.6	105.4	107.3	107.0	113.1	114.0	113.3	112.9	115.6	118.9	121.9	127.5	140.5	157.2	187.1	208.8	244.0	288.3
Oil	100.0	97.0	95.5	95.7	95.7	87.1	88.1	88.6	67.8	67.7	67.2	68.8	94.1	102.4	209.5	517.2	562.7	626.8	667.3
GDP at factor cost	100.0	101.7	100.7	99.8	98.9	100.2	101.0	98.9	92.3	92.9	91.8	92.6	102.1	112.0	149.9	241.6	266.8	306.6	350.5
GNP at factor cost	100.0	102.2	101.1	100.2	99.1	101.1	102.1	99.8	97.5	98.0	97.1	97.6	105.7	110.2	149.0	241.9	267.2	306.7	348.7
Gross national income	100.0	103.4	103.8	105.0	105.2	107.9	109.4	109.0	108.3	109.4	113.4	114.6	119.5	117.8	130.5	167.6	187.5	207.2	233.5
Net national income	100.0	103.7	104.2	105.5	105.3	108.7	109.6	108.5	108.9	109.4	113.4	114.3	119.4	118.8	131.7	170.4	190.7	209.5	235.3
Private comsumption expen.	100.0	104.0	105.6	108.1	108.4	112.4	114.6	113.7	113.1	114.8	119.0	120.4	127.2	135.3	150.4	173.5	189.1	213.9	263.5
Urban	100.0	107.9	109.5	110.5	111.6	116.5	117.0	117.8	113.1	114.8	119.0	120.4	127.2	135.3	150.4	173.5	189.1	213.9	263.5
Rural	100.0	100.0	101.6	105.4	104.7	107.6	111.6	108.6	113.1	114.8	119.0	120.4	127.2	135.3	150.4	173.5	189.1	213.9	263.5
Public consumption expen.	100.0	91.2	98.0	100.2	106.0	107.8	107.0	106.2	105.4	106.3	107.9	109.5	130.6	131.8	127.0	167.0	186.6	210.6	228.1
Gross domestic fixed capital formation	100.0	104.1	98.7	95.8	93.0	99.9	101.0	102.2	105.4	108.7	120.0	121.5	124.2	133.1	151.3	190.1	219.4	252.1	302.2
Private sector	100.0	104.6	100.2	97.4	95.0	101.3	101.8	102.7	109.1	111.2	120.9	121.5	131.7	137.5	152.1	190.0	219.5	247.0	292.0
Public sector	100.0	103.3	96.2	93.3	90.3	97.8	100.3	101.6	101.8	106.9	119.4	121.5	118.9	129.0	150.7	190.4	219.3	256.6	310.4
Machinery	100.0	102.9	104.7	106.5	107.6	109.3	110.7	110.8	139.1	139.5	143.4	147.5	154.4	154.0	155.9	190.1	220.3	231.4	246.7
Construction	100.0	104.8	95.7	91.8	88.8	96.1	97.3	98.2	91.2	96.0	109.5	110.0	110.9	122.4	148.5	190.1	218.6	267.4	343.6
National savings	100.0	113.0	97.2	93.0	89.4	87.7	88.8	90.2	89.6	88.6	94.2	94.3	97.0	81.0	96.9	140.5	161.3	172.3	182.1

Source: See section 2-1 .

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capacity. The rather ambitious growth targets for different sectors and the whole economy were achieved and surpassed, except in industry and mining. In the first three years of the fourth national development plan, the average annual rates of growth of agriculture, services, oil and the gross national product were 5.1, 12.9, 17.1 and 10.9 percent against the targets of 4.4, 7.5, 15.3 and 9.4 percent respectively, but for industry and mining it was 9.3 percent against the target of 12.6 percent. However, a slowdown of growth, not a recession, was in sight due to the imbalanced growth of the economy, the increase in demand for consumer goods especially agricultural commodities and pressure on the foreign exchange reserves because of a growing need to import capital goods, in addition to the consumer goods, in order to continue the necessary investments for the continuation of increase of the gross national product.

At that time some experts expected the Government to use the last two years of the fourth national development plan to redress the balance of the economy and reappraise its priorities, but the increase in the international demand for oil enabled the Organization of Petroleum Exporting Countries to negotiate a new deal with the international oil companies. As a result of the agreement of Bahman 1349 (February 1971) the oil revenue of Iran increased at a time that the Government was in serious need of foreign exchange. After this increase of revenue the Government decided not only to press ahead with the previous programmes, but also to speed up their paces; consequently, the impact of that decision gradually started to appear in the economy. That decision actually postponed the slowdown of the growth

of the gross national product and by the end of the second period a recession instead of a slowdonw was expected by many experts. In the second period all the economic resources and infrastructural facilities were stretched to their limits and different bottle-necks began to appear in the economy. For example, the shortage of some construction materials in the construction industry which was still the most important industry in the Iranian economy. In addition, the signs of the formation of huge monopolies in various parts of the economy were ignored and these monopolies were, in fact, being supported by different import regulations and restrictions and/or financial help.

In 1350 (1971/2) the value added in agriculture in real terms decreased by 2.9 percent because of drought, but in the following year it went up by 5.5 percent and for the period by an annual average of 1.2 percent. In the second period the average annual rates of growth of the value added in industry and mining, services and the gross national product in real terms were 14.5, 15.9 and 17.2 percent respectively, but in the oil sector it was 12.3 percent which was below the target rate. The downward trend of the share of the value added in agriculture in the gross national product at current prices continued, but the shares of the other sectors almost remained unchanged (Tables 7-9).

The private consumption expenditure in real terms had a slight decrease in 1350 (1971/2), 0.1 percent, but in 1351 (1972/3) it went up by 13.8 percent, an average annual rate of 6.6 percent, and its share in the gross national product fell to 50.3 percent

at the end of the period. The average annual rate of growth of the public consumption expenditure was 29.9 percent and its share in the gross national product in real terms went up to 20.8 percent (Tables 10 and 11).

In the second period, the gross domestic fixed capital formation at constant prices rose by an average of 25.2 percent per annum, but the public sector's share in it reduced to 51.5 percent as a result of a steep rise in private sector's investment (Tables 12-15).

In the second period, comparing to the first one and in spite of the 22.8 percent average annual increase in the payments for the importation of goods, the price indices went up noticeably. The implicit price deflators in agriculture, industry and mining, services, oil and the gross national product at factor cost rose by the average annual rates of 10.7, 5.9, 6.3, 22 and 6.3 percent respectively. These figures were far above the corresponding figures for the first period (Table 16).

2-5 Third Period 1352-1356 (1973/4-1977/8)

The third period was the same as that of the fifth national development plan. At the beginning of this period the Iranian economy was an already overheated one and, in terms of production as well as the ability to absorb more investment on the existing trends, several areas of the economy had already reached their limits. In the preparations of the fifth national development plan, after some superficial analysis of the economic indicators, the arguments for the continuation of the past trends prevailed and these preparations

were carried out without paying much attention to either the shortcomings and bottle-necks of the economy or the implications of prolonging the past policies.

The targets for the average annual rates of growth in real terms in agriculture, industry and mining, services, oil and the gross national product were set on 5.5, 15, 11.5, 11.8 and 11.4 percent respectively. The foreign exchange revenue from oil for the period was projected to be $24,585 million which was more than three times the actual figure for the fourth national development plan, $8,079 million.

When the fifth national development plan started, there was still doubt about the possibility of achieving the projected figure of the oil revenue, although long negotiations with the international oil companies were in progress. Amidst the negotiations, the 1973 war in the Middle East broke out and it was followed by the Arab oil embargo. As a result of these events the old established order of the international oil market, very quickly, changed and soon afterwards the price of oil in that market went up enormously. Naturally, the oil revenue of Iran increased substantially, but this golden opportunity, which could have been used to put the economy back in order and prepare the infrastructure and the foundation of an industrialized economy, was wasted and by bringing a large part of this increased revenue ($96,996 million for the period) into the economy and especially directing it to the consumption expenditure, the existing problems found new dimensions.

A good example of a way to keep the new fortune out

of the domestic economy but give the country the benefit of it, is education. Ever since Iran decided to become an industrialized society, she has suffered from an acute shortage of top and middle level experts in almost every branch of science and technology. At the time of that increase in oil revenue, every year 300,000 to 400,000 high school graduates used to compete in a national exam to occupy around 70,000 new places in universities and colleges of further education. By that time Iran had the financial means to send a large portion of the rest of these high school graduates to study in needed subjects in different universities and colleges all over the developed world and invest in them, the most important of all the economic resources, for the future benefit of the country, but instead, the Government started to pay the tuition fees of all the students in every stage of education, except in nursery schools, as well as grants to every student in the universities and colleges inside Iran.

In late 1352 (early 1974) the revision of the fifth national development plan began and by early 1353 (mid 1974) the new targets, which were dangerously high under those circumstances, were set. The new projected annual rates of growth in real terms in agriculture, industry and mining, services, oil and the gross national product[1] were 7, 18, 16.4, 51.5 and 25.9 percent, respectively.

The investment programmes to achieve these targets included some prestigious investments like the nuclear power plants, in a country that has tremendous potential for building of multi-purpose

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(1) Including the compensation for valuation of the terms of trade.

dams and probably the most known natural gas reserves in the world.[1] Moreover, gas was mostly produced as a by-product of oil and in 1356 (1977/8) 44.3 percent of the scanty production of the country was flared without any use.[2]

In the revised plan a great deal of money was also allocated to the subsidies and the social welfare programmes like consumer subsidies on some agricultural commodities,[3] payment of tuition fees of all the students in private educational institutes and provision of free snacks for the preparatory and guidance schools' students.[4]

By the approval and the execution of the revised fifth national development plan a series of events which ended up in the collapse of the Iranian economy began and the reprecussions of the wrong policies, which were magnified because of the existence of a chain of numerous bottle-necks and short-comings in the economy, severely affected the country. The sudden introduction of the heavy social welfare expenditures and subsidies on some food items, on top of an already fast growing purchasing power due to the accrued income

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(1) There is potential for construction of 13 dams in Khuzestan according to the Unified Report of the Development of the Natural Resources of Khuzestan Region; a report to the Plan Organization, Government of Iran; by Development and Resources Corporation, New York, & Khuzestan Development Services, March 1959.

(2) Annual Report and Balance Sheet, 1356 (1977/8) - Central Bank of Iran.

(3) In 1353 (1974/5), according to some personal calculations at the time, every metric ton of imported wheat, except for the administerative expenses which was non-calculable, cost the Government Rls. 37,000, but at the same time flour was being supplied by the Government to bakeries at Rls. 7,500 per metric ton.

(4) See Chapter 3 section 3-5.

from heavy investments, increased the aggregate effective demand and shifted the consumption [illegible] of almost all the goods and services upwards. The domestic supply was not enough to satisfy the new demand and consequently, the Iranian market turned into a sellers market. To bring the inflationary pressures under control, the restrictions on imports were eased and the foreign exchange restrictions and limitations were lifted. The new orders for masses of goods increased the work load of the Iranian ports and because they were already working at the maximum capacity and expansion of the docks could not keep pace with the increased volume of imports, the waiting time for unloading the ships grew longer and the country had to pay the penalty as either the increased fixed transportation costs (1) of goods to the Iranian ports or the waiting surcharges (2) on top of the ordinary fares. Although the expanding capacity of the ports (Table 17) at that time was not enough to cope with the imports, it was still more than the internal transportation facilities could deal with. Thus, the unloaded cargoes had to be stored in the ports for extended periods, and because of the insufficient storage areas, some open spaces had to be used. After the loss of the perishable cargoes of several ships, priority was given to unloading and transportation of these kinds of goods to the consumption areas, but the amount of damage suffered by the other goods was considerable and

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(1) A personal observation: The transportation cost of an American car from New York to Bandar Abbas, immediately north of the Strait of Hormoz, went up from $700 in the summer of 1352 (1973) to $2,500 in the summer of 1354 (1975).

(2) According to some unofficial estimates about $2,500 million in 1354 (1975/6).

Table 17

LOADED AND UNLOADED CARGO IN PORTS OF IRAN
1351-1355
(1972/3-1976/7)

('000 Tons)

Iranian year Gregorian year	1351[1] 1972/3	1352 1973/4	1353 1974/5	1354 1975/6	1355 1976/7
Loaded cargo (Exports)[2]	1,187	1,320	1,249	968	820
Unloaded cargo (Imports)	4,144	5,516	8,529	10,964	13,642
Total	5,331	6,836	9,778	11,932	14,462

(1) Except Abadan.
(2) Except oil and oil products.

Source: Statistical Yearbook, 1356 (1977/8) - Statistical Centre of Iran.

as a result the insurance premiums went up. To ease the congestion at the ports it was decided to increase the internal transportation facilities. At that time the entire network of railroads in Iran (Table 18) was built on the single-track system, its capacity was very limited (Table 19), it did not cover all the ports and the expansion of it or turning it to the double-track system was only a long-term solution. Therefore, an increase in the road haulage capacity seemed to be the only plausible answer. For that reason a great number of trucks and lorries was imported[1] but there were not enough drivers to use them. To solve that problem, in addition to high wages and fringe benefits, free driving courses and opportunities for drivers to buy their own lorries on easy terms, were provided to promote the job. These measures were not enough to attract the required number of drivers, mainly because of the general shortage of manpower and also the existence of matching or better offers in many other jobs, and eventually some drivers were hired from the foreign countries, mainly from the South Korea. However, it did not solve the problem because the network of roads was insufficient (Table 20) and gradually most roads, especially those from the ports or the borders to the main consumption markets, became congested, the average speed decreased, the roads deteriorated and the number of accidents went up sharply. These transportation problems affected the volume and the costs of imports as well as the production of

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(1) The number of registered lorries and trucks increased from 11,500 at the end of 1353 (20th March, 1975) to 35,821 at the end of 1354 (20th March 1976); Statistical Yearbook, 1355 (1976/7) - Statistical Centre of Iran.

Table 18

RAIL ROADS OF IRAN
1355
(1976/7)

Type of rail road	Length (km)
Main line	4,525
Subsidary line	341
Manœuvre line	768
Total	5,634

Source: Statistical Yearbook, 1356 (1977/8) - Statistical Centre of Iran.

Table 19

CARGO CARRIED BY RAIL IN IRAN
1351-1355
(1972/3-1976/7)

Iranian year Gregorian year	1351 1972/3	1352 1973/4	1353 1974/5	1354 1975/6	1355 1976/7
Weight of cargo ('000 tons)	6,935	7,549	8,183	8,829	8,751
Ton-kilometre ('000,000)	3,692	4,388	4,917	4,943	4,627

Source: Statistical Yearbook, 1356 (1977/8) - Statistical Centre of Iran.

Table 20

ROADS OF IRAN
1355
(1976/7)

Type of roads	Length (km)	Percentage	Density (m/km^2)
Highways	137	0.3	0.1
Asphalt main roads	14,253	28.3	8.7
Gravelled mainroads	11,207	22.3	6.8
Asphalt subsidiary roads	5,826	11.6	3.5
Gravelled subsidiary roads	10,925	21.7	6.6
Dirt roads	7,932	15.8	4.8
Total	50,280 (1)	100.0	30.5

(1) An extra 573 kilometres of roads in Khuzestan is under the control of the National Iranian Oil Company.

Source: Statistical Yearbook, 1356 (1977/8) - Statistical Centre of Iran.

those goods which were heavily dependent on the imports.

There were no short-term solutions to those infrastructural problems and for a long time they remained in the economy.

On the production front, in order to boost the output, almost all the long-term objectives for the industrial sector were dropped. Monopolies or oligopolies (with gentlemen's agreements) which were initiated in the later years of the fourth national development plan, settled and started to manipulate different areas of the economy. The assembly plants instead of turning into the manufacturing plants, remained as they were and gradually the quality of products deteriorated and the whole industrial sector lost its competitiveness with the imported products. Different sectors, subsectors and firms started to compete with each other over the limited and scarce resources, especially labour, and increase the wages and the prices. Naturally, an increasing number of people migrated from the rural to the urban areas and these movements caused an acute shortage of housing units in the urban areas and a sharp rise in the prices of land and construction materials and the wages of construction workers. These in turn accentuated the build-up of inflationary pressures and in spite of the massive subsidies, the establishment of a price control board and the postponement of some development expenditures in the last two years of the period, which was easier than the curtailment of the current expenditures, the rate of inflation gradually increased.

In the third period the growth targets of the revised fifth national development plan were not achieved. The average annual

rates of growth in agriculture, industry and mining, services, oil and the gross national product at constant prices were 4.6, 15.5, 15.3, 25.9 and 17 percent, respectively. The first of the two important points about these figures was that although in absolute terms and on average they were high, after 1354 (1975/6) the growth rates started to decrease and in 1356 (1977/8) the rate of growth of the gross domestic product without oil, which included agriculture, industry and mining and services, was the lowest since 1343 (1964/5). The second point was that the contribution of the oil sector towards[(1)] the growth of the gross national product was as much as 23.7 out of 34.3 percent in 1352 (1973/4) and 24.5 out of 32.8 percent in 1353 (1974/5).

The share of the value added in agriculture in the gross national product at current prices, again slumped heavily from 16.4 percent in 1351 (1972/3) to 9.1 percent in 1356 (1977/8). In the same period the corresponding ratios for industry and mining increased from 20.1 to 21.9 percent and for services decreased from 38.7 to 35.4 percent. The same ratio for the oil sector rose from 21.4 percent in 1351 (1972/3) to 46.1 percent in 1353 (1974/5) but fell to 31 percent at the end of the third period (Tables 7-9).

The private consumption expenditure in real terms went up by an average of 10.1 percent per annum but its share in the gross national product slumped from 50.3 to 37 percent at the end of the period. The public consumption expenditure in real terms in the first four years of the period rose sharply but in 1356 (1977/8),

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(1) Including the compensation for valuation of the terms of trade.

because the target for the oil revenue was not realized, it had to be reduced, therefore, its share in the gross national product, slightly decreased. The average annual rate of growth of the public consumption expenditure for the whole period was 16.6 percent in real terms (Tables 10 and 11).

The rate of growth of the gross domestic fixed capital formation in real terms went up from 11.2 percent in 1352 (1973/4) to 64.3 percent in 1354 (1975/6) and came down to 3.4 percent in 1356 (1977/8), but on average it was 22.9 percent per annum. The components of the gross domestic fixed capital formation and the shares of these components in the total figures had similar fluctuations (Tables 12-15).

In the third period, the annual rates of increase of the implicit price deflators in agriculture, industry and mining, services, oil and the gross national product were 14, 18, 14.3, 45.5 and 25.9 percent and all through the period they, except oil, were on the upward trends. The rates of increase of these deflators, except oil, in 1356 (1977/8) were the highest since 1338 (1959/60)[1] (Table 16).

In retrospect it can clearly be seen that the two increases of the oil revenue in the late 1349 (early 1971) and in 1352 (1973/4), which could have been great advantages, were damaging to the economy of Iran, under the circumstances of the time. The first one gave some false ideas about the potential of the use of financial capital and the capacity of the economy to absorb it. On the basis

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(1) There is no record before that time.

of those ideas, and without paying enough attention to the shortcomings of the economy and with insufficient studies, the fifth national development plan was prepared and, after the second rise, revised. The redressing of the imbalance of the economy which had been postponed by the first rise, was postponed once again by the second rise and made it first harder and then impossible to accomplish smoothly. To achieve the growth targets of the fifth national development plan, the Government had to interfere in the economy more actively and this, apart from causing too much central control and heavy bureaucratic red tape, took the initiative away from the private sector and deprived the economy from a self-control mechanism, namely the real market forces. Private enterprise was confined to profiteering and taking advantage of the loopholes of the ad hoc, unco-ordinated and contradictory government policies and programmes which were being devised to solve the increasing number of problems resulting from the previous policies and programmes. This way of running the country on a trial and error basis together with the misuse of funds and other resources, created an economic chaos and when the downturn of the economy began, the resultant economic hardship, which naturally hit harder those in lower income groups, and its accrued social grievances combined with the other chronic social grievances and brought about the recent revolution.

CHAPTER 3: SOME ECONOMIC AND SOCIAL CHARACTERISTICS OF THE RURAL AREAS OF IRAN

3-1 Rural Settlements

The first agricultural census in Iran which was carried out, prior to land reform, in Mehr 1339 (October 1960) had a limited scope. Afterwards, on the basis of the results of the population census of Aban 1345 (November 1966) in distinguishing between the rural and the urban areas, two sample censuses in 1350 (1971/2) and 1351 (1972/3) were implemented but they had few objectives and none of them satisfied the need for a complete and comprehensive set of data. In 1352 (1973/4) and 1353 (1974/5) an agricultural census, in two stages, was carried out. The first stage in 1352 (1973/4), hereinafter referred to as the census, was a complete national census but the second stage in 1353 (1974/5) was a sample census, hereinafter referred to as the sample census, was based on the findings of the first one. The results of the two stages were published in Esfand 1354 (March 1976) and Esfand 1355 (March 1977) respectively. The agricultural census was to be a regular quinquennial event but the one due in 1357 (1978/9) did not take place.

According to the findings of the census, in 1352 (1973/4), there were 84,440 rural settlements in Iran, out of which there were 59,189 (70.1 percent) villages, 6,584 (7.8 percent) independent settlements, 16,538 (19.6 percent) dependent settlements and 2,129 (2.5 percent) non-farming settlements.

According to the census definitions:

"A village is a place with a special name and usually a head-man (KAD-KHODA). It consists of some farms and residential and non-residential buildings and probably some horticultural gardens. Its boundaries are either officially registered or traditionally observed."

"A dependent or an independent settlement is a place outside the registered or traditional boundaries of villages. It has a special name and its boundaries are either officially registered or traditionally observed. If a settlement, administratively (e.g. for vital registration), is attached to another rural settlement (e.g. a village) it is called a dependent settlement, otherwise it is called an independent settlement."

"A non-farming settlement is a place in which the main activity is other than agricultural activities, although there might be some people involved in agriculture."

The census showed, at that time, that 90.2 percent of all settlements were populated by less than 100 households with an average of 20.4 households, while 6.6 percent were inhabited by 100-199 households with an average of 141 households and the rest, 3.2 percent, had more than 200 households population with an average of 355.2 households. The corresponding sets of figures for villages, with the same stratification, were 86.2 percent and 29.8 households, 9.4 percent and 141 households and 4.6 percent and 355.2 households (Table 21).

(1)

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(1) Per village unless otherwise stated.

Table 21

AVERAGE NUMBER OF HOUSEHOLDS IN VILLAGES AND ALL RURAL SETTLEMENTS IN IRAN
1352
(1973/4)

Number of households	All Settlements					Villages				
	Settlements		Households		Average number of households in a settlement	Villages		Households		Average number of households in a village
	Number	%	Number	%		Number	%	Number	%	
Less than 100	76,125	90.2	1,551,036	46.9	20.4	50,912	86.0	1,515,539	46.5	29.8
100-199	5,595	6.6	788,827	23.9	141.0	5,572	9.4	785,573	24.1	141.0
200 or more	2,720	3.2	966,204	29.2	355.2	2,705	4.6	960,789	29.4	355.2
Total	84,440	100.0	3,306,067	100.0	39.2	59,189	100.0	3,261,901	100.0	55.1

Source: Agricultural Census of 1352 (1973/4) - Statistical Centre of Iran.

In 1352 (1973/4) there were no dependent settlements with more than 200 inhabited households, no non-farming settlements with more than 400 households population (except one with 900 households in East Azarbayejan near an industrial complex) and no independent settlements with more than 500 resident households. There were 31 villages populated with more than 1,000 households, an average of 1,381.3 households, and considering the average number of persons in rural households, 5.17 in 1355 (1976/7) which was slightly less than that of 1345 (1966/7), their population must have been more than 5,000 which was the distinguishing figure between the rural and the urban areas. The reason for inclusion of these villages was that the census was carried out on the basis of the population census of 1345 (1966/7) in terms of the rural-urban divisions and only those places where the official status had been changed (i.e. municipalities were established in them) were deducted from the list accrued from that population census.

One of the important points was that the census, to a certain extent, revealed how the rural areas of Iran were being depleted of their population. In that year 639 villages, 3,144 independent settlements, 14,230 dependent settlements and 1,271 non-farming settlements were without any resident population. In the case of independent, dependent and non-farming settlements this phenomenon was not very important because it has always been relatively common for some people who have been working in these types of settlements to reside in other settlements, but in the case of villages it was serious because a place must have had some residents in order to be

classified as a village and although an allowance must be made for the use of the agricultural lands of some of them by non-resident farmers, some of them were not being used by either resident or non-resident farmers, or in other words their agricultural lands were left unused to deteriorate. Furthermore, the combination of two observations delineates a potentially more alarming situation. The first one is the fact that during the second half of the period between the last two population censuses, 1345 (1966/7) and 1355 (1976/7), the rural-urban migration surpassed any previous record and especially the last three years of that period were very hectic years. The second one is the large number of villages with small populations. As the census showed 7,722 villages (13 percent of the total) were populated with less than 5 households and 6,535 villages (11 percent of the total) were inhabited by 5-9 households (Table 22). The number of abandoned villages at the present time may be greater than shown in the census.

3-2 Location and the Main Method of Access

According to the census almost half (49.9 percent) of the rural settlements were in the mountainous areas while the rest of them were in the plains.

Asphalt roads could be used as the main way of access to only 3.2 percent of the settlements, whereas, apart from railways or waterways which were the main way of access to just a further 0.3 percent of them, the remaining ones had to be reached by gravelled

RURAL SETTLEMENTS IN IRAN, BY NUMBER OF HOUSEHOLDS
1352
(1973/4)

Number of households	Settlements										Households									
	Villages		Independent settlements		Dependent settlements		Non-farming settlements		Total		Villages		Independent settlements		Dependent settlements		Non-farming settlements		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Without any	639	1.08	3,144	47.75	14,230	86.04	1,271	59.70	19,284	22.84	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
1- 4	7,722	13.05	2,671	40.57	1,679	10.15	612	28.75	12,684	15.02	23,875	0.73	5,508	28.94	3,586	27.69	1,055	8.66	34,024	1.03
5- 9	6,535	11.04	423	6.42	323	1.95	59	2.77	7,340	8.69	52,103	1.60	3,127	16.43	2,478	19.14	471	3.86	58,179	1.76
10- 14	5,240	8.85	142	2.16	133	0.80	54	2.54	5,569	6.59	68,376	2.10	1,799	9.45	1,742	13.45	687	5.64	72,604	2.20
15- 19	4,381	7.40	77	1.17	78	0.47	25	1.17	4,561	5.40	79,622	2.44	1,406	7.39	1,431	11.05	453	3.72	82,912	2.51
20- 24	3,634	6.14	36	0.55	26	0.16	18	0.85	3,714	4.40	84,201	2.58	814	4.28	606	4.68	426	3.50	86,047	2.60
25- 29	3,234	5.46	23	0.35	24	0.14	12	0.56	3,293	3.90	91,805	2.82	654	3.44	694	5.36	350	2.87	93,503	2.83
30- 34	2,680	4.53	7	0.11	11	0.07	5	0.23	2,703	3.20	89,106	2.73	231	1.21	360	2.78	171	1.40	89,868	2.72
35- 39	2,511	4.24	13	0.20	6	0.04	4	0.19	2,534	3.00	96,620	2.96	504	2.65	227	1.75	152	1.25	97,503	2.95
40- 44	1,997	3.37	11	0.17	6	0.04	4	0.19	2,018	2.39	86,572	2.65	473	2.48	261	2.02	174	1.43	87,480	2.65
45- 49	1,994	3.37	5	0.07	7	0.04	12	0.56	2,018	2.39	97,213	2.98	250	1.31	348	2.69	594	4.87	98,405	2.98
50- 59	3,113	5.26	8	0.12	5	0.03	8	0.38	3,134	3.71	174,868	5.36	457	2.40	294	2.27	456	3.74	176,075	5.32
60- 69	2,400	4.06	7	0.11	3	0.02	3	0.14	2,413	2.86	158,836	4.87	461	2.42	193	1.49	202	1.66	159,692	4.83
70- 79	2,010	3.40	2	0.03	3	0.02	8	0.38	2,023	2.40	153,585	4.71	146	0.77	234	1.81	626	5.14	154,591	4.68
80- 89	1,363	2.30	2	0.03	0	0.00	4	0.19	1,369	1.62	117,377	3.60	175	0.92	0	0.00	348	2.86	117,900	3.57
90- 99	1,459	2.47	2	0.03	1	0.01	6	0.28	1,468	1.74	141,380	4.33	198	1.04	92	0.71	583	4.78	142,253	4.30
100-199	5,572	9.41	5	0.07	3	0.02	15	0.70	5,595	6.63	785,573	24.08	730	3.84	403	3.11	2,121	17.41	788,827	23.86
200-299	1,505	2.54	3	0.05	0	0.00	5	0.23	1,513	1.79	374,841	11.49	707	3.71	0	0.00	1,393	11.43	376,941	11.40
300-399	529	0.89	1	0.01	0	0.00	3	0.14	533	0.63	186,429	5.72	400	2.10	0	0.00	1,022	8.39	187,851	5.68
400-499	318	0.54	2	0.03	0	0.00	0	0.00	320	0.38	145,760	4.47	993	5.22	0	0.00	0	0.00	146,753	4.44
500-599	154	0.26	0	0.00	0	0.00	0	0.00	154	0.18	85,810	2.63	0	0.00	0	0.00	0	0.00	85,810	2.59
600-799	129	0.22	0	0.00	0	0.00	0	0.00	129	0.15	90,001	2.76	0	0.00	0	0.00	0	0.00	90,001	2.72
800-999	39	0.07	0	0.00	0	0.00	1	0.05	40	0.05	35,129	1.08	0	0.00	0	0.00	900	7.39	36,029	1.09
1000 or more	31	0.05	0	0.00	0	0.00	0	0.00	31	0.04	42,819	1.31	0	0.00	0	0.00	0	0.00	42,819	1.29
Total	59,189	100.00	6,584	100.00	16,538	100.00	2,129	100.00	84,440	100.00	3,261,901	100.00	19,033	100.00	12,949	100.00	12,184	100.00	3,306,067	100.00

Source: Agricultural Census of 1352 (1973/4) - Statistical Centre of Iran.

roads (8.4 percent), unmade roads (65.5 percent), or bridle paths[1] (22.6 percent). Hence, many settlements were cut off from the outside world for a period of the year, during which their residents lived a secluded life without access to medical facilities or other services, except in national emergencies when it was possible to reach them by helicopter (Table 23).

3-3 Management of the Agricultural Units

The sample census showed that in 1353 (1974/5) there were 2,993,275 agricultural units in Iran, of which 513,386 units were without land, while the rest were using 16,417,391 hectares of land. The number of units which were being run by their owners accounted for 98.5 percent of the total number and 92.6 percent of the total area of the units. Those remaining were being managed by overseers and most units in this case could be divided into three groups. The first group contained those small units which were left by the owners and were being used with their consent, usually by friends or relatives, either free or with a minimal charge without any formal or documented agreement. The second group was composed of those units where the lands were originally state-owned and leased on long-term or obtained by the influence of their lease holders or owners who themselves could not look after them. Finally, the third group consisted of either big agricultural units without land

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(1) In the census report which is in Farsi this category has actually been classified as the "Jeep Roads" with the intention of showing that these roads are only suitable for jeeps or some similar vehicles not for ordinary cars.

Table 23

RURAL SETTLEMENTS IN IRAN, BY MAIN WAY OF ACCESS
1352
(1973/4)

Main way of access	Number			Percent		
	In plains	In mountainous areas	Total	In plains	In mountainous areas	Total
Bridle path	2,330	16,790	19,120	5.5	39.9	22.6
Unmade road	32,380	22,930	55,310	76.5	54.4	65.5
Gravelled road	5,238	1,812	7,050	12.4	4.3	8.4
Asphalt road	2,172	511	2,683	5.1	1.2	3.2
Railway	128	73	201	0.3	0.2	0.2
Water-way	63	13	76	0.2	+	0.1
Total	42,311	42,129	84,440	100.0	100.0	100.0

Source: Agricultural Census of 1352 (1973/4) - Statistical Centre of Iran.

(e.g. poultry or dairy units) or large land holdings belonging to companies or those who could escape the land reform, and needed professional managers (Table 24).

3-4 Form of Labour of the Agricultural Units

In 1353 (1974/5), according to the sample census, only 4.7 percent of the total number of agricultural units were using wage-earning labourers to carry out more than half their work; while in 29.3 percent of the units more than half, and in the remaining 66 percent the whole necessary labour, was being provided by the members of the owners households (Table 25). There is no figure available to show the areas in the above categories, but if the average sizes of the units in different categories were applied, the corresponding ratios would be 16.8, 41.4 and 41.8 percent of the total area, respectively.

3-5 Education

The superficial comparison of the results of the two population censuses of 1345 (1966/7) and 1355 (1976/7) indicates a great improvement in the rate of literacy in Iran, and the rate of improvement has been more significant among the rural population compared with the urban population and among the females compared with the males. During the ten years period between the two censuses the rate of literacy in the urban areas went up from 61.5 to 74.4 percent[1] amongst the males, and from 38.9 to 55.7 percent among the females.

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(1) The figures represent the population, seven years and over in 1345 (1966/7); but the population, six years and over in 1355 (1976/7).

Table 24

AGRICULTURAL UNITS IN IRAN, BY FORM OF MANAGEMENT
1353
(1974/5)

Unit Size (ha)	Number and Area						Percentage					
	By owner		By overseer		Total		By owner		By overseer		Total	
	No.	Area (ha)	No.	Area (ha)	No.	Area (ha)	No.	Area	No.	Area	No.	Area
Without land	511,248	0	2,138	0	513,386	0	99.6	0.0	0.4	0.0	100.0	0.0
Less than 1	714,915	253,830	19,359	6,074	734,274	259,904	97.4	97.7	2.6	2.3	100.0	100.0
1-less than 2	318,383	437,957	3,810	5,747	322,193	443,704	98.8	98.7	1.2	1.3	100.0	100.0
2-less than 5	536,260	1,715,592	5,332	17,300	541,592	1,732,892	99.0	99.0	1.0	1.0	100.0	100.0
5-less than 10	424,289	2,926,398	3,645	27,078	427,934	2,953,476	99.1	99.1	0.9	0.9	100.0	100.0
10-less than 50	421,298	7,352,687	6,776	148,077	428,074	7,500,764	98.4	98.0	1.6	2.0	100.0	100.0
50-less than 100	14,472	948,911	1,797	124,811	16,269	1,073,722	89.0	88.4	11.0	11.6	100.0	100.0
100 or more	6,769	1,570,206	2,784	882,723	9,553	2,452,929	70.9	64.0	29.1	36.0	100.0	100.0
Total	2,947,634	15,205,581	45,641	1,211,810	2,993,275	16,417,391	98.5	92.6	1.5	7.4	100.0	100.0

Source: Agricultural Sample Census of 1353 (1974/5) - Statistical Centre of Iran.

Table 25

AGRICULTURAL UNITS IN IRAN, BY FORM OF LABOUR
1353
(1974/5)

Unit Size (ha)	Number				Percent			
	Wholly household	More than half household	More than half wage earning	Total	Wholly household	More than half household	More than half wage earning	Total
Without land	469,094	35,556	8,736	513,386	91.4	6.9	1.7	100.0
Less than 1	549,007	152,642	32,625	734,274	74.8	20.8	4.4	100.0
1-less than 2	196,858	111,499	13,836	322,193	61.1	34.6	4.3	100.0
2-less than 5	331,389	184,891	25,312	541,592	61.2	34.1	4.7	100.0
5-less than 10	235,351	174,442	18,141	427,934	55.0	40.8	4.2	100.0
10-less than 50	189,214	207,458	31,402	428,074	44.2	48.5	7.3	100.0
50-less than 100	2,907	7,387	5,975	16,269	17.9	45.4	36.7	100.0
100 or more	844	2,591	6,118	9,553	8.8	27.1	64.1	100.0
Total	1,974,664	876,466	142,145	2,993,275	66.0	29.3	4.7	100.0

Source: Agricultural Sample Census of 1353 (1974/5) - Statistical Centre of Iran.

The corresponding figures for the rural population were 15.1 to 30.6 percent and 4.3 to 17.4 percent respectively (Table 26). However, some observations about the quality of these figures should be made.

In 1345 (1966/7) the rate of literacy was higher in the urban population than in the rural population, and it was higher among the males than among the females. It is usually more difficult to improve upon a higher rate of literacy than a lower one, in the former case the campaign against illiteracy had to be concentrated mostly on adult education; and on attracting the illiterate adults, who were usually engaged in manual and fatiguing jobs, to education classes which was more laborious than bringing the children to schools. Besides, the constant flow of migrants, who were mostly illiterate, from the rural to the urban areas made the improvement of the rate of literacy in the urban areas, harder to achieve than in the rural areas.

The above-mentioned improvement of the rates of literacy does not properly convey the difference between the allocation of resources to urban and rural education. Although most universities in Iran, as in most countries of the world, are located in or around the population centres, the difference in provision of other stages of education, especially secondary education, between the urban and the rural areas was very substantial. The urban-rural break down of the secondary and the technical schools[1] was not available but from the break down of the number of staff in these schools,

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(1) These are secondary schools with the main emphasis on the technical subjects.

Table 26

POPULATION OF IRAN, BY SEX AND LITERACY
1345 & 1355
(1966/7 & 1976/7)

Area	Sex	1345						1355					
		Literate		Illiterate		Population 7 years and over		Literate		Illiterate		Population 6 years and over	
		No. ('000)	%	No. ('000)	%	No. ('000)	%	No. ('000)	%	No. ('000)	%	No. ('000)	%
Urban	Male	2,443	61.5	1,531	38.5	3,974	100.0	5,139	74.4	1,770	25.6	6,909	100.0
	Female	1,390	38.9	2,239	61.1	3,629	100.0	3,481	55.7	2,763	44.3	6,244	100.0
	Both sexes	3,833	50.4	3,770	49.6	7,603	100.0	8,620	65.5	4,533	34.5	13,153	100.0
Rural	Male	1,463	25.4	4,304	74.6	5,767	100.0	3,057	43.6	3,961	56.4	7,018	100.0
	Female	237	4.3	5,236	95.7	5,473	100.0	1,204	17.4	5,724	82.6	6,928	100.0
	Both sexes	1,700	15.1	9,540	84.9	11,240	100.0	4,261	30.6	9,685	69.4	13,946	100.0
Total	Male	3,906	40.1	5,835	59.9	9,741	100.0	8,196	58.8	5,731	41.2	13,927	100.0
	Female	1,627	17.9	7,475	82.1	9,102	100.0	4,684	35.6	8,488	64.4	13,172	100.0
	Both sexes	5,533	29.4	13,310	70.6	18,843	100.0	12,880	47.5	14,219	52.5	27.099	100.0

Sources: National Census of Population, 1345 (1966/7), & National Census of Population and Housing, 1355 (1976/7) - Statistical Centre of Iran.

the disparity could be ascertained. In the academic year of 1355/56 (1976/7) the number of staff in secondary schools was 25,799 in the urban areas against 1,141 in the rural areas, and the similar figures for the technical schools were 10,199 and 650 respectively.

According to the definition of the population censuses "all persons who could read and write a simple text in Farsi or in any other language, regardless of whether or not they had an educational certificate, and students who were in the first year of elementary schools or beyond, in adult education classes, or in literacy campaign classes" were considered to be literate. Therefore, the rate of literacy was no indication of quality. In 1355 (1976/7) the educational attainment of the literate but non-student rural population could be classified into: informal education 21.9 percent, primary schools 66.4 percent, secondary schools 10.6 percent,[1] [2] [3] [4]

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(1) A brief explanation about the education system in Iran is necessary. Before 1350 (1971/2) the pre-higher education comprised of 6 years of primary school and 6 years of secondary school. To enter a school, every child had to be 7 years old before the start of the appropriate academic year, 1st Mehr (23rd September), nevertheless, there were some exceptions. In that year the education system was changed and the total period was divided into three stages; primary 5 years, guidance 3 years and secondary 4 years, and the official school admittance age was reduced by one year. In the guidance stage, which is attached either to the primary or the secondary schools, children are supposed to be evaluated and guided, according to their talents and abilities, to be able to choose between the different subjects in the secondary schools.

(2) Every category includes those who either finished a stage of education or dropped out before finishing it.

(3) Including the guidance stage.

(4) Both old and new systems.

higher education 0.9 percent and not reported 0.2 percent; whereas the corresponding figures for the urban areas were 9.5, 51, 32.2, 7.1 and 0.2 percent.[1] These figures clearly demonstrate that at the time of enumeration the average level of educational attainment in the urban areas was much higher than that of the rural areas, and similar figures establish the higher level of educational attainment amongst the males compared with the females (Table 27).

Most important of all is the difference between the school attendance ratios of the new generation in the urban and the rural areas. In 1355 (1976/7) the number of children in the primary school age group (7-11 years, inclusive)[2] who were attending school, was 95.8 percent of the total number of children in that age group for the urban males and 89.2 percent for the urban females, while the similar ratios for the rural areas were 79.1 and 43.5 percent respectively. Although these ratios were falling in the higher stages, the gap between the urban and the rural areas was also widening. For the males and the females respectively, the school attendance ratios in the guidance stage (12-14 years, inclusive)[2] were 89.8 and 77.9 percent for the urban areas and 62.1 and 23.4 percent for the rural areas. Similarly, in the secondary stage (15-18 years, inclusive)[2] the urban

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(1) The sum of the illiterates, students and literate but non-student population in 1355 (1976/7) is not equal to the figure for the total population (6 years and over) in that year, there is a difference of 33,000 between the two figures which has not been explained in the census report.

(2) The six months difference between the academic and the calendar year causes problems in the enumerations, for example in any given year some six year olds are eligible to enter the schools but some are not, therefore for the sake of argument these assumptions for the age groups have been made.

Table 27

LITERATE NON-STUDENT POPULATION OF IRAN, 6 YEARS OF AGE AND OVER, BY SEX AND EDUCATIONL ATTAINMENT
1355
(1976/7)

Educational Attainment	Urban						Rural						Total					
	Male		Female		Both sexes		Male		Female		Both sexes		Male		Female		Both sexes	
	No. ('000)	%	No. ('000)	%	No. ('000)	%	No. ('000)	%	No. ('000)	%	No. ('000)	%	No. ('000)	%	No. ('000)	%	No. ('000)	%
Informal education	253	10.6	110	7.7	363	9.5	283	25.4	30	9.5	313	21.9	536	15.3	140	8.0	676	12.9
Primary	1169	49.0	776	54.3	1945	51.0	698	62.6	252	80.0	950	66.4	1867	53.3	1028	59.0	2895	55.2
Secondary	764	32.0	466	32.6	1230	32.2	122	10.9	30	9.5	152	10.6	886	25.3	496	28.4	1382	26.3
Higher education	198	8.3	74	5.2	272	7.1	11	1.0	2	0.7	13	0.9	209	6.0	76	4.4	285	5.4
Not reported	3	0.1	3	0.2	6	0.2	1	0.1	1	0.3	2	0.2	4	0.1	4	0.2	8	0.2
Total	2387	100.0	1429	100.0	3816	100.0	1115	100.0	315	100.0	1430	100.0	3502	100.0	1744	100.0	5246	100.0

Source: National Census of Population and Housing, 1355 (1976/7) - Statistical Centre of Iran.

ratios were 69.5 and 50 percent, while the rural ratios were 26.3 and 7.5 percent (Tables 28-30).

3-6 Medical Facilities

The distribution of medical facilities in Iran has been very uneven. In 1355 (1976/7), Tehran, with 13.4 percent of the country's population, benefited from the use or the services of 39.9 percent of the hospital beds, 38.8 percent of the general practitioners, 52.8 percent of the dentists and 68 percent of the specialists, while the corresponding figures for 22 provincial centres with nearly the same share of population, 13.5 percent, were 37.2, 33.8, 26.2 and 24 percent respectively. The rest of the country, with 73.1 percent of the population, could only avail itself of 22.9 percent of the hospital beds, 32.4 percent of the general practitioners, 21.4 percent of the dentists and 8 percent of the specialists. However, considering that 23 out of 42 cities with more than 50,000 population (with 6.7 percent of the total population), were enjoying almost the same standards of medical facilities as the provincial centres, and also the rest of the urban population (13.4 percent of the total) were in this category, it is a logical conclusion that the medical facilities in the rural areas of Iran were virtually non-existent (Table 31).

Due to the lack of facilities and amenities, doctors in Iran were reluctant to work in the rural areas. Therefore, in 1344 (1965/6) the Health Corps was established and the newly graduated doctors and dentists were supposed to do their compulsory military service in that Corps. Until 1354 (1975/6), during 19 terms, 2,660

Table 28

URBAN POPULATION OF IRAN, 6 YEARS OF AGE AND OVER, BY SEX, AGE AND SCHOOL ATTENDANCE
1355
(1976/7)

Age	Male			Female			Both sexes		
	Total	Students attending school		Total	Students attending school		Total	Students attending school	
		Number	Percent		Number	Percent		Number	Percent
6 years	223,612	164,338	73.5	212,068	143,145	67.5	435,680	307,483	70.6
7 years	226,887	213,315	94.0	222,929	197,557	88.6	449,816	410,872	91.3
8 years	229,265	220,884	96.3	213,968	192,445	89.9	443,233	413,329	93.3
9 years	213,439	206,687	96.8	199,536	181,344	90.9	412,975	388,031	94.0
10 years	231,478	221,966	95.9	211,776	188,627	89.1	443,254	410,593	92.6
11 years	202,744	194,465	95.9	186,829	163,119	87.3	389,573	357,584	91.8
12 years	227,074	210,087	92.5	197,512	162,432	82.2	424,586	372,519	87.7
13 years	223,301	202,953	90.9	189.890	148,945	78.4	413,191	351,898	85.2
14 years	220,385	189,538	86.0	185,322	135,457	73.1	405,707	324,995	80.1
15 years	219,677	178,815	81.4	185,203	117,749	63.6	404,880	296,564	73.2
16 years	205,061	153,210	74.7	180,849	101,936	56.4	385,910	255,146	66.1
17 years	200,806	136,748	68.1	175,358	83,772	47.8	376,164	220,520	58.6
18 years	207,395	111,761	53.9	197,332	63,780	32.3	404,727	175,541	43.4
19 years	191,090	71,800	37.6	155,143	42,773	27.6	346,233	114,573	33.1
20 years	214,401	60,300	28.1	195,543	32,560	16.7	409,944	92,860	22.7
21 years	156,413	38,155	24.4	134,313	20,577	15.3	290,726	58,732	20.2
22 years	151,325	29,436	19.5	148,684	15,068	10.1	300,009	44,504	14.8
23 years	138,151	22,460	16.3	130,580	11,098	8.5	268,731	33,558	12.5
24 years	135,364	17,796	13.1	128,139	7,348	5.7	263,503	25,144	9.5
25 years and over	3,091,499	84,259	2.7	2,792,846	34,916	1.3	5,884,345	119,175	2.0
6 years and over	6,909,367	2,728,973	39.5	6,243,830	2,044,648	32.7	13,153,187	4,773,621	36.3
6-19 years incl.	3,022,214	2,476,567	81.9	2,713,725	1,923,081	70.9	5,735,929	4,399,648	76.7

Source: National Census of Population and Housing, 1355 (1976/7) - Statistical Centre of Iran.

Table 29

RURAL POPULATION OF IRAN, 6 YEARS OF AGE AND OVER, BY SEX, AGE AND SCHOOL ATTENDANCE
1355
(1976/7)

Age	Male			Female			Both sexes		
	Total	Students attending school		Total	Students attending school		Total	Students attending school	
		Number	Percent		Number	Percent		Number	Percent
6 years	333,679	190,250	57.0	302,697	102,544	33.9	636,376	292,794	46.0
7 years	333,882	250,996	75.2	303,662	136,149	44.8	637,544	387,145	60.7
8 years	300,633	239,863	79.8	283,107	133,055	47.0	583,740	372,918	63.9
9 years	255,412	211,125	82.7	238,928	110,039	46.1	494,340	321,164	65.0
10 years	267,854	210,178	78.5	250,814	102,176	40.7	518,668	312,354	60.2
11 years	218,575	173,692	79.5	198,041	77,392	39.1	416,616	251,084	60.3
12 years	259,837	178,941	68.9	234,050	65,353	27.9	493,887	244,294	49.5
13 years	203,176	131,167	64.6	192,651	46,668	24.2	395,827	177,835	44.9
14 years	206,255	108,618	52.7	193,667	35,108	18.1	399,922	143,726	35.9
15 years	211,482	81,857	38.7	206,792	24,654	11.9	418,274	106,511	25.5
16 years	168,200	51,182	30.4	174,444	14,807	8.5	342,644	65,989	19.3
17 years	156,221	33,383	21.4	165,872	10,015	6.0	322,093	43,398	13.5
18 years	162,211	24,028	14.8	206,994	7,530	3.6	369,205	31,558	8.5
19 years	99,748	12,348	12.4	139,206	4,501	3.2	238,954	16,849	7.1
20 years	127,355	9,831	7.7	218,492	3,089	1.4	345,847	12,920	3.7
21 years	107,974	6,038	5.6	127,385	2,152	1.7	235,359	8,190	3.5
22 years	122,884	4,009	3.3	143,450	1,690	1.2	266,338	5,699	2.1
23 years	103,542	3,423	3.3	116,289	1,507	1.3	219,831	4,930	2.2
24 years	98,171	2,544	2.6	110,297	992	0.9	208,468	3,536	1.7
25 years and over	3,280,990	17,130	0.5	3,120,972	7,332	0.2	6,401,962	24,462	0.4
6 years and over	7,018,075	1,940,603	27.7	6,927,810	886,753	12.8	13,945,895	2,827,356	20.3
6-19 years incl.	3,177,159	1,897,628	59.7	3,090,925	869,991	28.1	6,268,090	2,767,619	44.2

Source: National Census of Population and Housing, 1355 (1976/7) - Statistical Centre of Iran.

Table 30

POPULATION OF IRAN, 6 YEARS OF AGE AND OVER, BY SEX, AGE AND SCHOOL ATTENDANCE
1355
(1976/7)

Age	Male			Female			Both sexes		
	Total	Students attending school		Total	Students attending school		Total	Students attending school	
		Number	Percent		Number	Percent		Number	Percent
6 years	557,291	354,588	63.6	514,765	245,689	47.7	1,072,056	600,277	56.0
7 years	560,769	464,311	82.8	526,791	333,706	63.4	1,087,360	798,017	73.4
8 years	529,898	460,747	87.0	497,075	325,500	65.5	1,026,973	786,247	76.6
9 years	468,851	417,812	89.1	438,464	291,383	66.5	907,315	709,195	78.2
10 years	499,332	432,144	86.5	462,590	290,803	62.9	961,922	722,947	75.2
11 years	421,319	368,157	87.4	384,870	240,511	62.5	806,189	608,668	75.5
12 years	486,911	389,028	79.9	431,562	227,785	52.8	918,473	616,813	67.2
13 years	426,477	334,120	78.3	382,541	195,613	51.1	809,018	529,733	65.5
14 years	426,640	298,156	69.9	378,989	170,565	45.0	805,629	468,721	58.2
15 years	431,159	260,672	60.5	391,995	142,403	36.3	823,154	403,075	49.0
16 years	373,261	204,392	54.8	355,293	116,743	32.9	728,554	321,135	44.1
17 years	357,027	170,131	47.7	341,230	93,787	27.5	698,257	263,918	37.8
18 years	369,606	135,789	36.7	404,326	71,310	17.6	773,932	207,099	26.8
19 years	290,838	84,148	28.9	294,349	47,274	16.1	585,187	131,422	22.5
20 years	341,756	70,131	20.5	414,035	35,649	8.6	755,791	105,780	14.0
21 years	264,387	44,193	16.7	261,698	22,729	8.7	526,085	66,922	12.7
22 years	274,213	33,445	12.2	292,134	16,758	5.7	566,347	50,203	8.9
23 years	241,693	25,883	10.7	246,869	12,605	5.1	488,562	38,488	7.9
24 years	233,535	20,340	8.7	238,436	8,340	3.5	471,971	28,680	6.1
25 years and over	6,372,489	101,389	1.6	5,913,818	42,248	0.7	12,286,307	143,637	1.2
6 years and over	13,927,459	4,669,576	33.5	13,171,630	2,931,401	22.3	27,099,082	7,600,977	28.0
6-19 years incl.	6,199,386	4,374,195	70.6	5,804,640	2,793,072	48.1	12,004,019	7,167,267	59.7

Source: National Census of Population and Housing, 1355 (1976/7) - Statistical Centre of Iran.

Table 31

MEDICAL FACILITIES IN IRAN
1355
(1976/7)

Area	Hospital beds		General Practi-tioners		Dentists		Specialists		Population		Number of medical facilities for every 100,000 of population			
	No.	%	No.	%	No.	%	No.	%	No.	%	Hospital beds	Gen. prac-titioners	Dentists	Specialists
Tehran	21,542	39.9	2,965	33.8	1,030	52.4	3,169	68.0	4,496,159	13.4	479.1	65.9	22.9	70.5
Provincial centres(1)	20,044	37.2	2,962	33.8	515	26.2	1,117	24.0	4,551,260(2)	13.5	440.4	65.1	11.3	24.5
Rest of the country	12,358	22.9	2,844	32.4	420	21.4	371	8.0	24,614,757	73.1	50.2	11.6	1.7	1.5
Total	53,944	100.0	8,771	100.0	1,965	100.0	4,657	100.0	33,662,176	100.0	160.2	26.1	5.8	13.8

(1) Except Tehran.

(2) The population of four provincial centres, Shahr-e-Kord, Ilam, Semnan and Yasuj were not available and these names were not on the list of Iranian cities with more than 50,000 population; for the purposes of this table the total population of these towns is assumed to be 180,000 (i.e. 45,000 each).

Source: Statistical Yearbook, 1356 (1977/8) - Statistical Centre of Iran.

doctors and 243 dentists served in the Health Corps.[1] Although most of them were stationed in the so-called "Rural Clinics", almost all of these clinics were in the places which, by the standards of the population census, were considered to be parts of the urban areas.

In recent years some doctors were hired from countries like India, Pakistan, the Phillipines and Bangladesh to serve in the above-mentioned clinics, but this programme created its own perplexities. Apart from the practical (e.g. need of every doctor to have an interpreter, familiar with the medical terms, present in the visits and examinations of the patients) and social problems (e.g. difference between the religious persuasions and rituals of the doctors and their patients), the question of confidence and trust between the two sides was never solved. Apparently this programme has been dropped.

3-7 Amenities

In addition to some of the characteristics mentioned earlier, the presence or the absence and in particular the disparity of distribution or utilization of some amenities, although does not quantify, could expose the difference of the quality of life between the urban and the rural areas. The national census of population and housing of 1355 (1976/7) gave some clear indications of this difference.

In 1355 (1976/7) 88.4 percent of the rural dwellings in Iran were single-household domiciles. Poverty and the large family

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(1) Statistical Yearbook, 1356 (1977/8) - Statistical Centre of Iran.

tradition (i.e. close relatives and in-laws living together) were the main reasons behind the housing of more than one household in the remaining rural dwellings. In the urban areas 74.5 percent of the houses were single-household abodes but the huge rural-urban migration and the insufficient investment in construction of new housing units because of the government's wrong policies, (e.g. indirect encouragement of speculation in land and by law making it almost impossible to evict a tenant or increase the rent, in order to keep the rent level down but actually discouraging the investment in rentable houses, and forcing some house owners to keep their extra houses empty) were the reasons behind the housing of more than one household in any of the remaining dwellings (Table 32).

In the rural areas 76.4 percent of dwellings were made of sun-dried bricks and wood or mud. The weak foundation of these houses has been the main cause of often enormous casualties in frequent earthquakes. In the urban areas kiln-dried bricks and steel or wood were the principal construction materials of houses, while a relatively high proportion, 27.7 percent, of dwellings was made of sun-dried bricks and wood or mud. This was another result of the low standards that have been applied to classify a place as a town (Table 33).

Electricity was supplied to 90.1 percent and piped water to 89.3 percent of the urban dwellings, although in the latter case the residents of 10.3 percent of houses had to use the outside common taps. In the rural areas just 14.6 percent of dwellings, most of them in places relatively close to large cities, were supplied by electricity and the residents of only 22.4 percent of them could use

Table 32

DWELLINGS OF PRIVATE SETTLED HOUSEHOLDS IN IRAN,
BY NUMBER OF ROOMS AND NUMBER OF HOUSEHOLDS PER DWELLING
1355
(1976/7)

Area	Number of Rooms	Number of households per dwelling						Total
		1	2	3	4	5	6 or more	
Urban	1	160,240	2,600	740	320	100	160	164,160
	2	479,520	75,780	820	320	80	180	556,700
	3	425,960	90,360	28,680	260	100	160	545,520
	4	331,700	115,600	36,140	12,820	100	180	496,540
	5	186,200	55,160	26,500	9,940	4,120	180	282,100
	6	102,140	35,220	18,460	7,360	3,720	2,000	168,900
	7	41,560	13,200	6,440	4,180	1,860	1,880	69,120
	8	22,580	10,640	4,760	3,560	1,500	2,020	45,060
	9	7,980	3,180	2,660	920	780	1,240	16,760
	10 or more	15,580	7,840	4,180	2,400	1,900	4,200	36,100
	Total	1,773,460	409,580	129,380	42,080	14,260	12,200	2,380,960
Rural	1	565,400	2,620	540	220	40	180	569,000
	2	984,060	47,900	660	60	20	160	1,032,860
	3	570,360	62,000	13,200	160	40	120	645,880
	4	270,400	70,060	10,520	3,440	60	80	354,560
	5	107,980	31,200	9,720	1,680	620	60	151,260
	6	55,840	21,300	11,960	2,140	600	340	92,180
	7	23,180	7,880	4,440	2,060	400	460	38,420
	8	14,240	6,060	4,020	3,020	360	200	27,900
	9	4,800	2,120	2,060	840	500	220	10,540
	10 or more	11,760	4,580	3,840	2,160	2,220	3,000	27,660
	Total	2,608,020	255,720	60,960	15,780	4,960	4,820	2,950,260
Whole Country	1	725,640	5,220	1,280	540	140	340	733,160
	2	1,463,580	123,680	1,480	380	100	340	1,589,560
	3	996,320	152,360	41,880	420	140	280	1,191,400
	4	602,100	185,660	46,660	16,260	160	260	851,100
	5	294,180	86,360	36,220	11,620	4,740	240	433,360
	6	157,980	56,520	30,420	9,500	4,320	2,340	261,080
	7	64,740	21,080	10,880	6,240	2,260	2,340	107,540
	8	36,820	16,700	8,780	6,580	1,860	2,220	72,960
	9	12,780	5,300	4,720	1,760	1,280	1,460	27,300
	10 or more	27,340	12,420	8,020	4,560	4,220	7,200	63,760
	Total	4,381,480	655,300	190,340	57,860	19,220	17,020	5,331,220

Source: National Census of Population and Housing, 1355 (1976/7) - Statistical Centre of Iran.

Table 33

DWELLINGS OF PRIVATE SETTLED HOUSEHOLDS IN IRAN, BY PRINCIPAL CONSTRUCTION MATERIAL
1355
(1976/7)

	Area	Principal construction material												Total
		Reinforced concrete & steel beam Skeleton	Kiln-dried brick and steel	Stone and Steel	Kiln-dried brick and wood	Stone and wood	Cement blocks	Wood	Sun-dried brick and wood	Sun-dried brick and mud	Straw and similars	Tent	Others	
Number	Urban	30740	1119960	37480	428780	43360	41900	3440	371740	288020	6300	3440	5800	2380960
	Rural	6380	76160	8420	109340	329120	29980	14200	1591740	662980	81180	22800	17960	2950260
	Whole country	37120	1196120	45900	538120	372480	71880	17640	1963480	951000	87480	26240	23760	5331220
Percent	Urban	1.3	47.0	1.6	18.0	1.8	1.8	0.1	15.6	12.1	0.3	0.1	0.3	100.0
	Rural	0.2	2.6	0.3	3.7	11.2	1.0	0.5	53.9	22.5	2.7	0.8	0.6	100.0
	Whole country	0.7	22.4	0.9	10.1	7.0	1.4	0.3	36.8	17.8	1.6	0.5	0.5	100.0

Source: National Census of Population and Housing, 1355 (1976/7) - Statistical Centre of Iran.

piped water, 11.9 percent from outside taps (Table 34). Kerosene and gas were the two most commonly used fuels by the urban households both for heating (80.5 percent) and cooking (93 percent). In the rural areas although kerosene, either alone or with other fuels, was the most important fuel (used for heating by 60.3 percent and for cooking by 74.6 percent of households), a large number of households used either wood and coal[1] (23.3 percent for heating and 13.3 percent for cooking) or animal dung (15.8 percent for heating and 6.5 percent for cooking). These two fuels were mainly being used by subsistence farmers (Table 35).

Radio, television and telephone were the three other services that the difference of rates of utilization of any of them in the urban and the rural areas was a further indication of the disparity of income and/or the availability of that service in those areas. In the private urban households the usage rates of these three services were 75.7, 46.8 and 13.8 percent respectively, whereas the corresponding figures for the private rural households were 55.1, 3.1 and 0.2 percent (Table 36).

3-8 Social Security and Insurance

There is no social security for the rural population except for those who are working for some industrial plants which are located in the rural areas or in the branches of some services which are initiated in the urban areas (e.g. banks).

Although in 1355 (1976/7) a bill passed through Parliament to

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(1) Mainly charcoal.

Table 34

DWELLINGS OF PRIVATE SETTLED HOUSEHOLDS IN IRAN, BY AVAILABILITY OF ELECTRICITY AND PIPED WATER
1355
(1976/7)

	Area	Piped Water					Electricity		
		With			Without	Total	With	Without	Total
		Inside building	Outside building within 100 metres	Outside building more than 100 meters					
Number	Urban	1,880,680	113,100	132,980	254,200	2,380,960	2,144,440	236,520	2,380,960
	Rural	309,580	206,140	145,240	2,289,300	2,950,260	429,580	2,520,680	2,950,260
	Whole country	2,190,260	319,240	278,220	2,543,500	5,331,220	2,574,020	2,757,200	5,331,220
Percent	Urban	79.0	4.7	5.6	10.7	100.0	90.1	9.9	100.0
	Rural	10.5	7.0	4.9	77.6	100.0	14.6	85.4	100.0
	Whole country	41.1	6.0	5.2	47.7	100.0	48.3	51.7	100.0

Source: National Census of Population and Housing, 1355 (1976/7) - Statistical Centre of Iran.

Table 35

PRIVATE HOUSEHOLDS IN IRAN, BY TYPE OF FUEL USED FOR HEATING AND COOKING
1355
(1976/7)

Use		Area	Type of Fuel										Total
			Kerosene	Gas	Wood and coal	Animal dung	Kerosene and gas	Kerosene & electricity	Kerosene and other fuels	Gas and electricity	Gas and other fuels	Others	
Number	Heating	Urban	2462980	55280	183740	22120	100860	30960	352540	5200	2220	36260	3252160
		Rural	771680	7860	806600	545220	25720	4080	1283040	960	4060	8620	3457840
		Whole country	3234660	63140	990340	567340	126580	35040	1635580	6160	6280	44880	6710000
	Cooking	Urban	975740	764040	14600	3500	1285820	5040	147600	33320	16620	5880	3252160
		Rural	563040	110080	461640	224500	333120	1940	1681340	3640	75900	2640	3457840
		Whole country	1538780	874120	476240	228000	1618940	6980	1828940	36960	92520	8520	6710000
Percent	Heating	Urban	75.7	1.7	5.6	0.7	3.1	1.0	10.8	0.2	0.1	1.1	100.0
		Rural	22.3	0.2	23.3	15.8	0.8	0.1	37.1	+	0.1	0.3	100.0
		Whole country	48.2	0.9	14.8	8.5	1.9	0.5	24.4	0.1	0.1	0.7	100.0
	Cooking	Urban	30.0	23.5	0.5	0.1	39.5	0.2	4.5	1.0	0.5	0.2	100.0
		Rural	16.3	3.2	13.3	6.5	9.6	0.1	48.6	0.1	2.2	0.1	100.0
		Whole country	22.9	13.0	7.1	3.4	24.1	0.1	27.3	0.6	1.4	0.1	100.0

Source: National Census of Population and Housing, 1355 (1976/7) - Statistical Centre of Iran.

Table 36

PRIVATE HOUSEHOLDS IN IRAN, BY
AVAILABILITY OF RADIO, TELEVISION AND TELEPHONE
1355
(1976/7)

	Area	Availability	Radio	Television	Telephone
Number	Urban	With	2,460,880	1,523,360	441,640
		Without	791,280	1,728,800	2,810,520
		Total	3,252,160	3,252,160	3,252,160
	Rural	With	1,905,000	106,700	7,320
		Without	1,552,840	3,351,140	3,450,520
		Total	3,457,840	3,457,840	3,457,840
	Whole country	With	4,365,880	1,630,060	448,960
		Without	2,344,120	5,079,940	6,261,040
		Total	6,710,000	6,710,000	6,710,000
Percent	Urban	With	75.7	46.8	13.6
		Without	24.3	53.2	86.4
		Total	100.0	100.0	100.0
	Rural	With	55.1	3.1	0.2
		Without	44.9	96.9	99.8
		Total	100.0	100.0	100.0
	Whole country	With	65.1	24.3	6.7
		Without	34.9	75.7	93.3
		Total	100.0	100.0	100.0

Source: National Census of Population and Housing, 1355 (1976/7) - Statistical Centre of Iran.

arrange an insurance programme for the agricultural commodities and animal stocks against national or local disasters (e.g. drought) by the main state-owned insurance company at the time,[1] the law has not been implemented.

3-9 Income and Expenditure

Although the existing criteria,[2] to classify a settlement as a town, may have simplified the administrative and reporting works of the officialdom of Iran, they have also increased the margin of error in economic and social studies. Many settlements, which in fact have been large villages with all the characteristics of the rural areas, have been considered small towns in all the national and sample censuses. The integration of the results of the enumerations of various features of these settlements with those of the larger towns and cities has, to a certain extent, distorted the whole statistical picture of the urban areas. This system affects the set of data about the distribution of the private consumption expenditure more than any other set and to overcome the present deficiencies in this area, as well as the other areas, it is necessary to apply a more complex classification system to distinguish between the urban and the rural areas (e.g. a combination of population, share of different activities in the economy of a settlement, availability of various amenities, etc.) or at least to publish the relevant statistics in more detail (e.g. separate figures for Tehran, cities with

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(1) After the revolution all the insurance companies have been nationalized.

(2) See Chapter 1.

more than 100,000 population, cities with between 50,000 and 100,000 population, small towns and rural areas).

To calculate the per caput figures of income and expenditure in the period between 1338 (1959/60)[1] and 1356 (1977/8)[1], the population figures for these years and their rural-urban break downs were required. The Statistical Centre of Iran has provided the population figures of this period in five year intervals.[2] The annual figures within every interval were calculated by the application of the compound and simple rate formulae[3] in the following way:[4]

$$A = a(1+r)^n$$

where:

a = quantity at the beginning

A = quantity at the end

n = number of the time units between the beginning and the end

r = average rate of change in every time unit

therefore to find the annual population figures within an interval (e.g. 1335 and 1340)

$$A_{1340} = A_{1335}\ (1+r)^5$$

where:

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(1) The first and the last years that the national figures for them were available.

(2) See Table 65.

(3) All the figures have been rounded.

(4) Although any change of assumption or methodology affects the interpolation of the figures within the intervals, it can cause only slight variations.

A_{1335} = population in 1335 = 18,955,000

A_{1340} = population in 1340 = 22,372,000

then the calculated r (in this case = %3.37) was applied to

$$A_{1338} = A_{1335} (1+0.0337)^3$$

$$A_{1338} = 18,955,000 (1.0337)^3 = 20,937,000$$

to calculate the annual figures for the urban population by the simple rate formula:

$$B_{1340} = B_{1335} (1+5i)$$

where:

B_{1335} = share of the urban population in the total population in 1335 = 31.4 percent

B_{1340} = share of the urban population in the total population in 1340 = 34.3 percent

i = average annual rate of increase of the share of the urban population in the total population

Then the calculated i (in this case = %1.85) was applied to

$$B_{1338} = 31.4 [1+3(\%1.85)] = 33.14 \text{ percent}$$

then:

$$(A_{1338})(B_{1338}) = U_{1338}$$

where:

U_{1338} = Urban population in 1338

therefore:

$$(20,937,000)(\%33.14) = 6,939,000$$

To calculate the rural population in 1338

$$A_{1338} - U_{1338} = R_{1338}$$

where:

R_{1338} = Rural population in 1338

thus:

20,937,000 - 6,939,000 = 13,998,000

The population figures of 1356 (1977/8) were calculated in the same way and on the basis of the low projection of the Chapter 6.

Information about the disposable income and its distribution in Iran is very scarce and the results of all the attempts to measure it on a large scale and upon an individual basis (e.g. through the household budget surveys) have either not been credible or not been published.

According to the national accounts tables from 1338 (1959/60) to 1356 (1977/8) the net national income of Iran increased by the average annual rates of 12.6 percent in real terms and 18.1 percent at current prices. During this period and on average the net per caput income rose by 9.5 percent per annum from Rls. 20,012 to Rls. 103,271 in real terms and by 14.9 percent per annum from Rls. 11,745 to Rls. 142,626 at current prices.(1)

The only officially published document(2) about the distribution of income in Iran is a chart, without its supporting tables, which showed that distribution of income in the urban areas of Iran in 1344 (1965/6) was more unequal than in 1338 (1959/60), (Figure 1).

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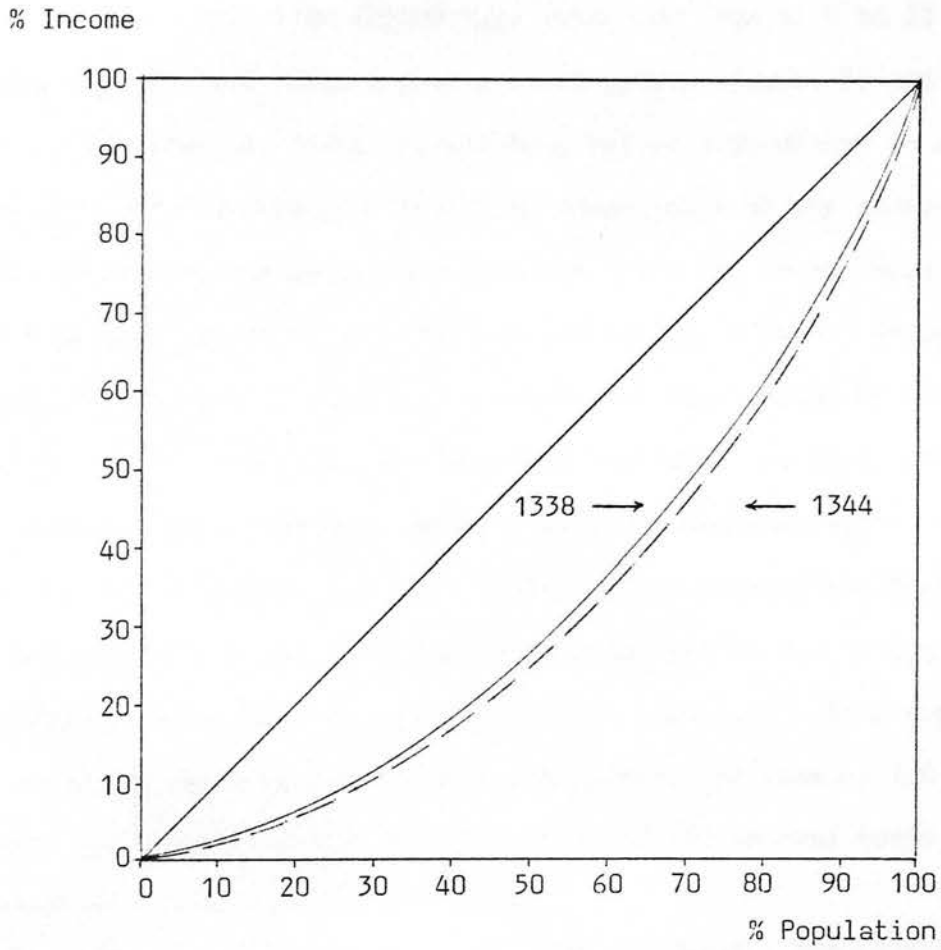
(1) The rate of exchange in 1356 (1977/8) was approximately Rls. 125 = £1.

(2) National Income of Iran 1338-1344 (1959/60-1965/6) - Central Bank of Iran.

Figure 1

DISTRIBUTION OF INCOME IN URBAN AREAS OF IRAN
1338 & 1344
(1959/60 & 1965/6)



Source: National Income of Iran, 1338-1344 (1959/60-1965/6) - Central Bank of Iran, Mehr 1346 (October 1967).

During the period between 1338 (1959/60) and 1356 (1977/8) the private consumption expenditure in the whole country, the urban areas and the rural areas increased by the respective annual rates of growth of 7.9, 10.5 and 3.2 percent in real terms and 13.9, 16.6 and 8.9 percent at current prices. In this period the rural share in the total private consumption expenditure decreased from 48.9 to 22 percent both in real terms and at current prices[1] (Tables 37 and 38).

The urban per caput private consumption expenditure in real terms was almost constant in the first seven years of the above-mentioned period, but on average over the whole period it increased by 5.3 percent per annum from Rls. 26,719 to Rls. 67,435. At current prices it rose by 11.1 percent per annum from Rls. 15,406 to Rls. 102,449. At the beginning of the period the rural per caput private consumption expenditure grew faster than its urban equivalent, but when the latter started its fast growth the increase of the former stopped and only in the last five years of the period did it begin to grow again, mainly due to some government's subsidies.[2] On average the rural per caput private consumption expenditure rose by 1.8 percent per annum from Rls. 12,680 to Rls. 17,392 in real terms and

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(1) In 1338 (1959/60) and from 1346 (1967/8) onward, the Central Bank of Iran has applied one set of aggregative prices (Table 16) to the urban and the rural private consumption expenditure and because of that the distribution of the private consumption expenditure between the two regions at the beginning and the end of the period, were the same in real terms and at current prices.

(2) Including the distribution of the free imported wheat among the rural households.

PRIVATE CONSUMPTION EXPENDITURE IN IRAN
1338-1356
(1959/60-1977/8)

At constant prices of 1353

Iranian year / Gregorian year		1338 1959/60	1339 1960/1	1340 1961/2	1341 1962/3	1342 1963/4	1343 1964/5	1344 1965/6	1345 1966/7	1346 1967/8	1347 1968/9	1348 1969/70	1349 1970/1	1350 1971/2	1351 1972/3	1352 1973/4	1353 1974/5	1354 1975/6	1355 1976/7	1356 1977/8
Private consumption expenditure (Rls. 10^9)	Urban	185.4	195.2	197.6	213.4	223.6	239.9	251.4	297.6	335.0	403.9	460.4	536.4	539.0	644.4	753.8	839.2	928.4	957.0	1109.5
	Rural	177.5	189.0	189.9	191.5	195.9	215.3	222.9	233.9	238.5	241.4	225.8	237.8	234.4	235.9	260.8	288.6	278.9	285.9	313.0
	Total	362.9	384.2	387.5	404.9	419.5	455.2	473.4	531.5	573.5	645.3	686.2	774.2	773.4	880.3	1014.6	1127.8	1207.3	1242.9	1422.5
Indices	Urban	100.0	105.3	106.6	115.1	120.6	129.4	135.6	160.5	180.7	217.9	248.3	289.3	290.7	347.6	406.6	452.6	500.8	516.2	598.4
	Rural	100.0	106.5	107.0	107.9	110.3	121.3	125.1	131.8	134.4	136.0	127.2	133.8	132.1	132.9	146.9	162.6	157.1	161.1	176.3
	Total	100.0	105.9	106.8	111.6	115.6	125.4	130.4	146.5	158.0	177.8	189.1	213.3	213.1	242.6	279.6	310.8	332.7	342.5	392.0
Distribution (%)	Urban	51.1	50.8	51.0	52.7	53.3	52.7	53.1	56.0	58.4	62.6	67.1	69.3	69.7	73.2	74.3	74.4	76.9	77.0	78.0
	Rural	48.9	49.2	49.0	47.3	46.7	47.3	46.9	44.0	41.6	37.4	32.9	30.7	30.3	26.8	25.7	25.6	23.1	23.0	22.0
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Growth rates (%)	Urban	-	5.3	1.2	8.0	4.8	7.3	4.8	18.4	12.6	20.6	14.0	16.5	0.5	19.6	17.0	11.3	10.6	3.1	15.9
	Rural	-	6.5	0.5	0.8	2.3	9.9	3.1	5.4	2.0	1.2	-6.5	5.3	-1.4	0.6	10.6	10.7	-3.4	2.5	9.5
	Total	-	5.9	0.9	4.5	3.6	8.5	4.0	12.3	7.9	12.5	6.3	12.8	-0.1	13.8	15.3	11.2	7.0	2.9	14.5
Urban private consumption expenditure / Rural private consumption expenditure (%)		104.5	103.3	104.1	111.4	114.1	111.4	113.2	127.2	140.5	167.3	203.7	225.6	229.9	273.2	289.0	290.6	332.9	334.7	354.5
Rural private consumption expenditure / Urban private consumption expenditure (%)		95.7	96.8	96.1	89.7	87.6	89.7	88.3	78.6	71.2	59.8	49.0	44.3	43.5	36.6	34.6	34.4	30.0	29.9	28.2
Shares in gross domestic product (%)	Urban	26.9	26.4	25.4	25.2	24.6	24.1	22.5	24.0	23.8	25.3	25.3	26.2	24.0	25.1	26.2	27.3	29.5	27.1	30.9
	Rural	25.7	25.5	24.5	22.7	21.6	21.7	19.9	18.8	16.9	15.1	12.4	11.6	10.4	9.2	9.1	9.4	8.9	8.1	8.7
	Total	52.6	51.9	49.9	47.9	46.2	45.8	42.4	42.8	40.7	40.4	37.7	37.8	34.4	34.3	35.3	36.7	38.3	35.2	39.6
Shares in gross national income (%)	Urban	39.0	38.9	38.2	39.3	39.0	38.1	35.9	38.5	38.9	41.9	44.0	45.7	39.7	36.8	32.0	26.9	29.5	25.9	28.9
	Rural	37.3	37.7	36.7	35.2	34.1	34.2	31.7	30.2	27.7	25.0	21.5	20.3	17.3	13.5	11.1	9.2	8.9	7.7	8.2
	Total	76.3	76.6	74.9	74.5	73.1	72.3	67.6	68.7	66.6	66.9	65.5	66.0	57.0	50.3	43.1	36.1	38.4	33.6	37.1
Shares in net national income (%)	Urban	44.2	44.5	43.5	44.6	44.2	43.3	40.8	43.8	44.3	47.6	49.9	51.8	44.6	41.3	35.0	28.5	31.6	27.7	31.2
	Rural	42.4	43.0	41.8	40.0	38.8	38.9	36.1	34.4	31.6	28.4	24.5	22.9	19.4	15.1	12.1	9.8	9.5	8.3	8.8
	Total	86.6	87.5	85.3	84.6	83.0	82.2	76.9	78.2	75.9	76.0	74.4	74.7	64.0	56.4	47.1	38.3	41.1	36.0	40.0

Source: See section 2-1 .

PRIVATE CONSUMPTION EXPENDITURE IN IRAN
1338-1356
(1959/60-1977/8)

At current prices

Iranian year / Gregorian year		1338 1959/60	1339 1960/1	1340 1961/2	1341 1962/3	1342 1963/4	1343 1964/5	1344 1965/6	1345 1966/7	1346 1967/8	1347 1968/9	1348 1969/70	1349 1970/1	1350 1971/2	1351 1972/3	1352 1973/4	1353 1974/5	1354 1975/6	1355 1976/7	1356 1977/8
Private consumption expenditure (Rls. 10^9)	Urban	106.9	121.4	124.8	136.0	143.9	161.2	169.7	202.2	218.4	267.4	315.8	372.3	395.1	502.7	653.7	839.2	1012.2	1180.2	1685.6
	Rural	102.3	109.0	111.2	116.3	118.2	133.5	142.8	146.4	155.5	159.8	154.9	165.0	171.8	183.9	226.0	288.6	303.8	352.3	475.2
	Total	209.2	230.4	236.0	252.3	262.1	294.7	312.5	348.6	373.9	427.2	470.7	537.3	566.9	686.6	879.7	1127.8	1316.0	1532.5	2160.8
Indices	Urban	100.0	113.6	116.7	127.2	134.6	150.8	158.7	189.1	204.3	250.1	295.4	348.3	369.6	470.3	611.5	785.0	946.9	1104.0	1576.8
	Rural	100.0	106.5	108.7	113.7	115.5	130.5	139.6	143.1	152.0	156.2	151.4	161.3	167.9	179.8	220.9	282.1	297.0	344.4	464.5
	Total	100.0	110.1	112.8	120.6	125.3	140.9	149.4	166.6	178.7	204.2	225.0	256.8	271.0	328.2	420.5	539.1	629.1	732.6	1032.9
Distribution (%)	Urban	51.1	52.7	52.9	53.9	54.9	54.7	54.3	58.0	58.4	62.6	67.1	69.3	69.7	73.2	74.3	74.4	76.9	77.0	78.0
	Rural	48.9	47.3	47.1	46.1	45.1	45.3	45.7	42.0	41.6	37.4	32.9	30.7	30.3	26.8	25.7	25.6	23.1	23.0	22.0
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Growth rates (%)	Urban	-	13.6	2.8	9.0	5.8	12.0	5.3	19.2	8.0	22.4	18.1	17.9	6.1	27.2	30.0	28.4	20.6	16.6	42.8
	Rural	-	6.5	2.0	4.6	1.6	12.9	7.0	2.5	6.2	2.8	-3.1	6.5	4.1	7.0	22.9	27.7	5.3	16.0	34.9
	Total	-	10.1	2.4	6.9	3.9	12.4	6.0	11.6	7.3	14.3	10.2	14.1	5.5	21.1	28.1	28.2	16.7	16.5	41.0
Urban private consumption expenditure / Rural private consumption expenditure (%)		104.5	111.4	112.2	116.9	121.7	120.7	118.8	138.1	140.5	167.3	203.9	225.6	230.0	273.4	289.2	290.8	333.2	335.0	354.7
Rural Private consumption expenditure / Urban private consumption expenditure (%)		95.7	89.8	89.1	85.5	82.1	82.8	84.1	72.4	71.2	59.8	49.1	44.3	43.5	36.6	34.6	34.4	30.0	29.9	28.2
Shares in gross domestic product (%)	Urban	37.5	38.9	38.6	38.9	38.8	39.1	36.3	39.7	40.6	43.6	45.7	47.5	41.6	42.2	36.6	27.3	29.1	26.3	32.4
	Rural	35.8	35.0	34.3	33.3	31.8	32.4	30.6	28.8	28.9	26.1	22.4	21.0	18.1	15.5	12.7	9.4	8.7	7.9	9.1
	Total	73.3	73.9	72.9	72.2	70.6	71.5	66.9	68.5	69.5	69.7	68.1	68.5	59.7	57.7	49.3	36.7	37.8	34.2	41.5
Shares in gross national income (%)	Urban	37.7	39.3	39.0	39.9	39.9	39.8	37.2	40.1	39.3	42.4	44.6	46.4	40.8	40.8	35.7	26.9	28.8	25.8	31.5
	Rural	36.0	35.2	34.8	34.2	32.8	32.9	31.3	29.1	27.9	25.4	21.9	20.6	17.7	15.0	12.3	9.2	8.6	7.7	8.9
	Total	73.7	74.5	73.8	74.1	72.7	72.7	68.5	69.2	67.2	67.8	66.5	67.0	58.5	55.8	48.0	36.1	37.4	33.5	40.4
Shares in net national income (%)	Urban	43.5	45.5	44.9	45.9	46.1	45.7	42.8	46.7	45.2	49.1	51.5	53.6	46.7	46.3	39.3	28.5	30.8	27.8	34.3
	Rural	41.6	40.8	40.1	39.2	37.8	37.8	36.1	33.8	32.2	29.3	25.3	23.7	20.3	17.0	13.6	9.8	9.2	8.3	9.7
	Total	85.1	86.3	85.0	85.1	83.9	83.5	78.9	80.5	77.4	78.4	76.8	77.3	67.0	63.3	52.9	38.3	40.0	36.1	44.0

Source: See section 2-1 .

by 7.4 percent per annum from Rls. 7,308 to Rls. 26,404 at current prices (Table 39).

The urban-rural ratio of the per caput consumption expenditure which was 2.1 in 1338 (1959/60) rose to 3.9 in 1356 (1977/8). Although published information about the similar ratio of income was not available, some maniuplation of the figures in the national accounts tables suggested that the urban-rural ratio of the per caput income in 1356 (1977/8), was approximately 6. Also in personal communication, some experts who were familiar with this field in Iran believed that in that year the urban-rural ratio of the per caput disposable income was over 6 and the Tehran-rural ratio was around 8.

The household budget surveys in 1353 (1974/5) and 1354 (1975/6) in the urban areas and in 1353 (1974/5) and 1355 (1976/7) in the rural areas showed that the distribution of expenditure was more uneven in the former than the latter. The main reasons for the better distribution of expenditure in the rural areas were: i) the fact that most very high income farmers were residing in the urban areas; ii) the general poverty of a majority of farmers who were living at a subsistence level[1]; and iii) the modifying effect of the high share of the value of the non-purchased food in the total rural food expenditure. Those surveys also showed that in both regions the distribution of expenditure became more uneven in the latter years (Tables 40 and 41, & Figures 2 and 3).

The distribution of income is usually expected to be more

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(1) See Chapter 4 section 4-6.

Table 39

PER CAPUT CONSUMPTION EXPENDITURE INDICES IN IRAN
1338-1356
(1959/60-1977/8)

Year		Population ('000)			At constant prices			At current prices		
		Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
1338	1959/60	20,937	6,939	13,998	100.0	100.0	100.0	100.0	100.0	100.0
1339	1960/1	21,643	7,298	14,345	102.4	100.1	103.9	106.5	108.0	104.0
1340	1961/2	22,372	7,677	14,695	99.9	96.3	101.9	105.6	105.5	103.5
1341	1962/3	23,017	8,065	14,952	101.5	99.0	101.0	109.7	109.5	106.4
1342	1963/4	23,681	8,473	15,208	102.2	98.8	101.6	110.8	110.2	106.3
1343	1964/5	24,364	8,898	15,466	107.8	100.9	109.8	121.1	118.1	118.1
1344	1965/6	25,066	9,340	15,726	109.0	100.7	111.3	124.8	117.9	124.3
1345	1966/7	25,789	9,795	15,994	118.9	113.7	115.3	135.3	134.0	125.2
1346	1967/8	26,585	10,278	16,307	124.5	122.0	115.3	140.8	137.9	130.5
1347	1968/9	27,405	10,776	16,629	135.8	140.3	114.5	156.0	161.1	131.5
1348	1969/70	28,250	11,294	16,956	140.1	152.6	105.0	166.8	181.5	125.0
1349	1970/1	29,122	11,835	17,287	153.4	169.6	108.5	184.6	204.2	130.6
1350	1971/2	30,020	12,398	17,622	148.6	162.7	104.9	189.0	206.9	133.4
1351	1972/3	30,715	13,029	17,686	165.4	185.1	105.2	223.7	250.4	142.3
1352	1973/4	31,427	13,683	17,744	186.3	206.2	115.9	280.1	310.1	174.3
1353	1974/5	32,155	14,360	17,795	202.4	218.7	127.9	351.0	379.3	221.9
1354	1975/6	32,900	15,062	17,838	211.7	230.7	123.3	400.3	436.2	233.0
1355	1976/7	33,662	15,797	17,865	213.0	226.7	126.2	455.6	485.0	269.8
1356	1977/8	34,451	16,453	17,997	238.2	252.4	137.2	627.7	665.0	361.3

Source: For population figures see section 3 - 9.
The rest of the table calculated on the basis of the figures in tables 37 and 38.

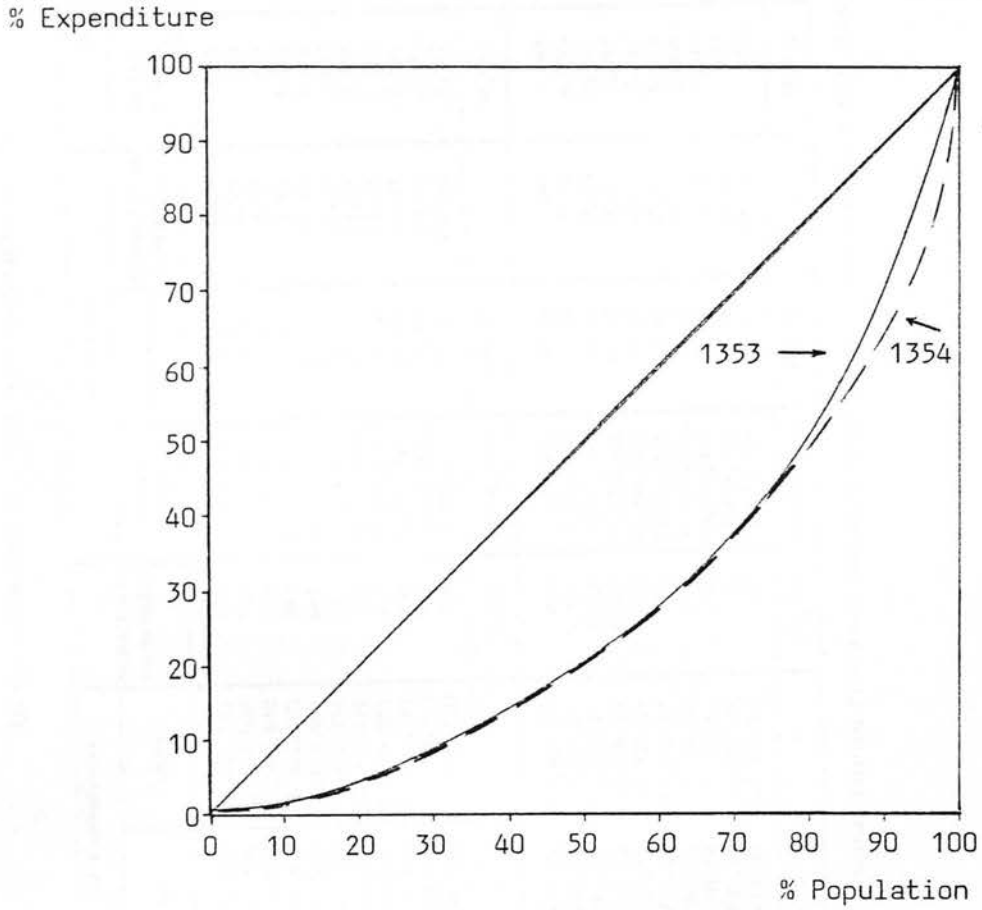
MONTHLY EXPENDITURE OF SAMPLE URBAN HOUSEHOLDS IN IRAN
1353 & 1354
(1974/5 & 1975/6)

	Expenditure groups (Rls.)	Average household expenditure (Rls.)			Number of households	Expenditure			Sample population		
		Non-food	Food	Total		Total (Rls.)	Percentage	Accumulative percentage	In the groups	Percentage	Accumulative percentage
1353 (1974/5)	Less than 2,000	748.179	588.811	1,336.990	196	262,050	0.17	0.17	442	1.03	1.03
	2,000- 2,999	1,303.456	1,236.111	2,539.567	261	662,827	0.43	0.60	806	1.88	2.91
	3,000- 3,999	1,707.946	1,797.256	3,505.202	336	1,177,748	0.76	1.36	1,363	3.17	6.08
	4,000- 4,999	2,278.265	2,230.714	4,508.979	325	1,465,418	0.94	2.30	1,405	3.27	9.35
	5,000- 7,499	3,105.974	3,193.500	6,299.474	1,041	6,557,752	4.22	6.52	5,115	11.91	21.26
	7,500- 9,999	4,471.871	4,263.451	8,735.322	954	8,333,497	5.37	11.89	5,107	11.89	33.15
	10,000-12,499	5,818.564	5,382.546	11,201.110	831	9,308,122	5.99	17.88	4,677	10.89	44.04
	12,500-14,999	7,397.666	6,352.840	13,750.506	686	9,432,847	6.07	23.95	4,111	9.57	53.61
	15,000-19,999	9,605.082	7,769.262	17,374.344	1,022	17,756,580	11.44	35.39	6,063	14.12	67.73
	20,000-29,999	13,877.131	10,388.161	24,265.292	1,073	26,036,658	16.77	52.16	6,451	15.02	82.75
	30,000 and more	41,567.868	19,576.038	61,143.906	1,215	74,289,846	47.84	100.00	7,406	17.25	100.00
	Total	-	-	-	7,940	155,283,346	100.00	-	42,946	100.0	-
1354 (1975/6)	Less than 2,500	958.54	624.85	1,583.39	151	239,092	0.11	0.11	322	0.77	0.77
	2,500- 4,999	2,004.96	1,923.08	3,928.04	478	1,877,603	0.90	1.01	1,547	3.72	4.49
	5,000- 7,499	5,022.04	3,211.46	8,233.50	520	3,241,420	1.55	2.56	2,252	5.40	9.91
	7,500- 9,999	4,388.18	4,383.36	8,771.54	903	7,920,701	3.79	6.35	4,430	10.66	20.56
	10,000-14,999	6,315.48	6,155.27	12,470.75	1,194	14,890,076	7.13	13.48	6,318	15.19	35.75
	15,000-19,999	8,722.11	8,748.19	17,470.30	1,158	20,230,607	9.68	23.16	6,578	15.82	51.57
	20,000-29,999	12,823.23	11,649.30	24,472.53	1,192	29,171,256	13.96	37.12	7,119	17.12	68.69
	30,000-49,999	20,567.43	17,340.18	37,907.61	1,212	45,944,023	21.99	59.11	7,174	17.25	85.94
	50,000-99,999	37,260.82	29,874.12	67,134.94	829	55,654,865	26.64	85.75	5,042	12.12	98.06
	100,000 and more	164,809.37	43,407.63	208,217.00	143	29,775,031	14.25	100.00	807	1.94	100.00
	Total	-	-	-	7,780	208,944,674	100.00	-	41,589	100.00	-

Source: Calculated on the basis of the original figures from Urban Household Budget Surveys, 1353 (1974/5) & 1354 (1975/6) - Statistical Centre of Iran.

Figure 2

DISTRIBUTION OF EXPENDITURE IN URBAN AREAS OF IRAN
1353 & 1354
(1974/5 & 1975/6)



Source: Drawn on the basis of the figures of Table 40.

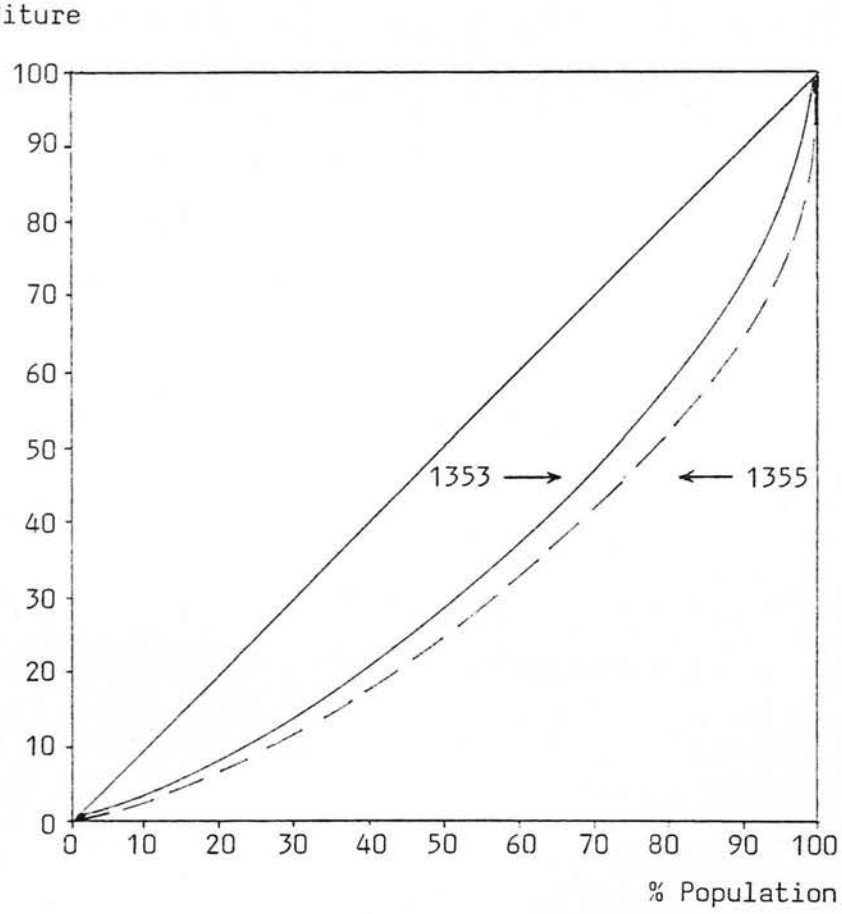
MONTHLY EXPENDITURE OF SAMPLE RURAL HOUSEHOLDS IN IRAN
1353 & 1355
(1974/5 & 1976/7)

	Expenditure groups (Rls.)	Average household expenditure (Rls.)			Number of households	Expenditure			Sample population			Non-purchased food	
		Non-food	Food	Total		Total (Rls.)	Percentage	Accumulative percentage	In the groups	Percentage	Accumulative percentage	Amount (Rls.)	Percent of total food
1353 (1974/5)	Less than 2,000	430.682	894.455	1,325.137	132	174,918	0.47	0.47	239	1.29	1.29	430.159	48.1
	2,000- 2,999	781.302	1,776.796	2,558.098	162	414,412	1.12	1.59	563	3.05	4.34	823.698	46.4
	3,000- 3,999	1,035.778	2,465.052	3,500.830	230	805,191	2.18	3.77	973	5.27	9.61	1,145.048	46.5
	4,000- 4,999	1,310.360	3,154.000	4,464.360	283	1,263,414	3.41	7.18	1,327	7.18	16.79	1,319.530	41.8
	5,000- 7, 99	1,940.366	4,193.302	6,133.668	681	4,177,028	11.29	18.47	3,466	18.77	35.56	1,683.802	40.2
	7,500- 9,999	2,783.825	5,711.989	8,495.714	515	4,375,293	11.83	30.30	3,023	16.37	51.93	2,422.124	42.4
	10,000-12,499	4,225.207	6,728.671	10,953.878	392	4,293,920	11.61	41.91	2,394	12.96	64.89	2,784.401	41.4
	12,500-14,999	5,430.620	7,964.939	13,395.559	263	3,523,032	9.52	51.43	1,667	9.03	73.92	3,115.798	39.1
	15,000-19,999	7,385.082	9,571.459	16,956.541	292	4,951,310	13.38	64.81	1,924	10.42	84.34	4,274.760	44.7
	20,000-29,999	11,714.760	11,597.600	23,312.360	250	5,828,090	15.75	80.56	1,731	9.37	93.71	4,739.748	40.9
	30,000 and more	32,903.707	15,041.693	47,945.400	150	7,191,810	19.44	100.00	1,162	6.29	100.00	5,656.593	37.6
	Total	-	-	-	3,350	36,998,418	100.00	-	18,469	100.00	-	-	-
1355 (1976/7)	Less than 2,500	615.69	987.55	1,603.24	484	775,968	0.84	0.84	1,149	3.09	3.09	590.84	59.8
	2,500- 4,999	1,207.75	2,608.70	3,816.45	1,186	4,526,310	4.88	5.72	4,356	11.73	14.82	1,293.97	49.6
	5,000- 7,499	1,988.26	4,215.46	6,203.72	1,261	7,822,891	8.44	14.16	5,966	16.06	30.88	2,023.48	48.0
	7,500- 9,999	2,956.08	5,693.70	8,649.78	1,072	9,272,564	10.01	24.17	5,697	15.34	46.22	2,617.22	46.0
	10,000-14,999	4,443.38	7,769.27	12,212.65	1,412	17,244,262	18.61	42.78	8,451	22.75	68.97	3,363.37	43.3
	15,000-19,999	7,288.64	9,919.49	17,208.13	703	12,097,315	13.06	55.84	4,539	12.22	81.19	4,089.54	41.2
	20,000-29,999	11,646.64	12,487.96	24,134.60	602	14,529,029	15.68	71.52	4,088	11.01	92.20	5,273.14	42.2
	30,000-49,999	21,358.46	15,970.19	37,328.65	274	10,228,050	11.04	82.56	1,914	5.15	97.35	6,279.59	39.3
	50,000-99,999	51,662.70	15,829.37	67,492.07	104	7,019,175	7.58	90.14	727	1.96	99.31	6,056.46	38.3
	100,000 and more	198,944.67	13,413.00	212,357.67	43	9,131,380	9.86	100.00	255	0.69	100.00	4,997.75	37.3
	Total	-	-	-	7,141	92,646,944	100.00	-	37,142	100.00	-	-	-

Source: Calculated on the basis of the original figures from Rural Household Budget Surveys, 1353 (1974/5) & 1355 (1976/7) - Statistical Centre of Iran.

Figure 3

DISTRIBUTION OF EXPENDITURE IN RURAL AREAS OF IRAN
1353 & 1355
(1974/5 & 1976/7)



Source: Drawn on the basis of the figures of Table 41.

uneven than the distribution of expenditure, because the savings rates are usually higher in the higher income brackets than the lower ones. However, even if the distribution curves of income and expenditure were assumed to be the same, a comparison between the distribution curves of Figure 1 and Figure 2 would show that the distribution of income in the urban areas of Iran has become increasingly more uneven through the years.

CHAPTER 4: LAND

4-1 Arable Land and its Categories

In 1354 (1975/6), according to the National Cropping Plan,[1] there were 32.2 million hectares of high potential lands, 18.6 million hectares of medium potential lands and 114.2 million hectares of unutilizable or weak potential lands in Iran. The area used for agricultural production varied in various years, but on average between 13.3-14.3 million hectares (41.3-44.4 percent) of the high potential lands, between 0.7-1.1 million hectares (3.8-5.9 percent) of the medium potential lands, between 2.3-4.5 million hectares (2-3.9 percent) of the weak potential lands and on the whole between 16.3-19.9 million hectares (9.9-12.1 percent) of the total land area of Iran were usually used every year (Table 42).

In 1353 (1974/5) the total area of the agricultural units in Iran was 16.4 million hectares, out of which 6.1 million hectares were irrigated and 10.3 million hectares were unirrigated lands. The areas allocated to fodder, cash crops, permanent crops and fallow lands were, respectively 7.3, 51.5, 8.5 and 32.7 percent of the total irrigated lands and 1.4, 59.2, 1 and 38.4 percent of the total unirrigated lands (Table 43).

In 1345 (1966/7), according to the estimates of the Forestry and Pastures Organization, there were 18 million hectares of forest

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(1) National Cropping Plan; a report to the Ministry of Agriculture and Natural Resources (of Iran), by Bookers Agricultural and Technical Services Limited & Hunting Technical Services Limited, Shahrivar 1354 (August 1975).

Table 42

LAND POTENTIAL IN IRAN

Location	Good potential		Medium potential		Weak potential or unutilizable		Total	
	Area ('000 ha)	Percentage	Area ('000 ha)	Percentage	Area ('000 ha)	Percentage	Area ('000 ha)	Percentage
Plains and valleys	11,256	31.2	6,276	17.4	18,540	51.4	36,072	100.0
Plateaux	20,512	41.8	12,290	25.0	16,310	33.2	49,112	100.0
Mountainous areas, hills and highlands, and scattered patches of land	24,350	30.5	11,396	14.3	44,070	55.2	79,816	100.0
Total (gross)	56,116	34.0	29,962	18.2	78,920	47.8	165,000	100.0
Total (net)	32,228	19.5	18,566	11.3	114,206	69.2	165,000	100.0
Range used	13,300-14,300	-	700-1,100	-	2,300-4,500	-	16,300-19,900	-

Source: National Cropping Plan, a report to the Ministry of Agriculture and Natural Resources (of Iran) - Bookers Agricultural and Technical Services Limited & Hunting Technical Services Limited, Shahrivar 1354 (August 1975).

ALLOCATION OF LAND ON AGRICULTURAL UNITS IN IRAN
1353
(1974/5)

	Unit size (ha)	Irrigated land					Unirrigated land					Total agricultural land				
		Fodder	Other cash crops	Permanent crops	Fallow	Sub-total	Fodder	Other cash crops	Permanent crops	Fallow	Sub-total	Fodder	Other cash crops	Permanent crops	Fallow	Total
Agricultural land (ha)	Less than 1	11,626	100,827	68,021	19,560	200,034	880	32,392	16,564	10,034	59,870	12,506	133,219	84,585	29,594	259,904
	1-less than 2	13,817	184,504	55,163	38,515	291,999	3,580	88,168	16,434	43,523	151,705	17,397	272,672	71,597	82,038	443,704
	2-less than 5	52,095	487,388	77,553	174,979	792,015	16,934	599,338	35,520	289,085	940,877	69,029	1,086,726	113,073	464,064	1,732,892
	5-less than 10	91,683	542,522	82,518	309,383	1,026,106	35,529	1,167,959	19,611	704,271	1,927,370	127,212	1,710,481	102,129	1,013,654	2,953,476
	10-less than 50	191,546	976,205	138,553	685,303	1,991,607	77,797	3,254,011	16,546	2,160,803	5,509,157	269,343	4,230,216	155,099	2,846,106	7,500,764
	50-less than 100	24,889	209,201	34,070	164,829	432,989	6,221	370,322	371	263,819	640,733	31,110	579,523	34,441	428,648	1,073,722
	100 or more	55,697	633,952	63,295	579,788	1,350,732	6,820	600,272	1,307	493,798	1,102,197	62,517	1,234,224	64,602	1,091,586	2,452,929
	Total	441,353	3,134,599	519,173	1,990,357	6,085,482	147,761	6,112,462	106,353	3,965,333	10,331,909	589,114	9,247,061	625,526	5,955,690	16,417,391
Percentage of total	Less than 1	4.5	38.8	26.2	7.5	77.0	0.3	12.5	6.3	3.9	23.0	4.8	51.3	32.5	11.4	100.0
	1-less than 2	3.1	41.6	12.4	8.7	65.8	0.8	19.9	3.7	9.8	34.2	3.9	61.5	16.1	18.5	100.0
	2-less than 5	3.0	28.1	4.5	10.1	45.7	1.0	34.6	2.0	16.7	54.3	4.0	62.7	6.5	26.8	100.0
	5-less than 10	3.1	18.3	2.8	10.5	34.7	1.2	39.6	0.7	23.8	65.3	4.3	57.9	3.5	34.3	100.0
	10-less than 50	2.6	13.0	1.9	9.1	26.6	1.0	43.4	0.2	28.8	73.4	3.6	56.4	2.1	37.9	100.0
	50-less than 100	2.3	19.5	3.2	15.3	40.3	0.6	34.5	+	24.6	59.7	2.9	54.0	3.2	39.9	100.0
	100 or more	2.3	25.8	2.6	24.4	55.1	0.3	24.5	0.1	20.1	44.9	2.6	50.3	2.6	44.5	100.0
	Total	2.7	19.1	3.2	12.1	37.1	0.9	37.2	0.6	24.2	62.9	3.6	56.3	3.8	36.3	100.0
Percentage of sub-total	Less than 1	5.8	50.4	34.0	9.8	100.0	1.5	54.1	27.7	16.7	100.0					
	1-less than 2	4.7	63.2	18.9	13.2	100.0	2.4	58.1	10.8	28.7	100.0					
	2-less than 5	6.6	61.5	9.8	22.1	100.0	1.8	63.7	3.8	30.7	100.0					
	5-less than 10	8.9	52.9	8.0	30.2	100.0	1.9	60.6	1.0	36.5	100.0					
	10-less than 50	9.6	49.0	7.0	34.4	100.0	1.4	59.1	0.3	39.2	100.0					
	50-less than 100	5.7	48.3	7.9	38.1	100.0	1.0	57.8	+	41.2	100.0					
	100 or more	4.1	46.9	4.7	44.3	100.0	0.6	54.5	0.1	44.8	100.0					
	Total	7.3	51.5	8.5	32.7	100.0	1.4	59.2	1.0	38.4	100.0					

Source: Agricultural Sample Census of 1353 (1974/5) - Statistical Centre of Iran.

in Iran: 3.4 million hectares of hornbeam trees, oak trees, etc. in the north, 10 million hectares of oak trees in the west, 2.4 million hectares of pines scattered all over the country, 1.2 million hectares of juniper trees in the mountainous areas and one million hectares of tropical and desert trees.(1)

In 1350 (1971/2), according to the estimates of the same organization, there were 100 million hectares of pastures in Iran, out of which 19 million hectares were the good potential pastures, 25 million hectares were the medium potential pastures and the remaining 56 million hectares were the weak potential or ruined pastures under extremely bad conditions.(2)

4-2 Land Reform

4-2-1 Conditions Before Land Reform

Before the land reform programme there were four broad categories of land ownership in Iran, comprised of private, endowed, state and crown lands. There was no accurate information available about the share of any of these strata in the total agricultural area, but extracted figures from the population census of 1335 (1956/7) showed that the above-mentioned categories accounted for 76, 10, 10, and 4 percent of the villages.(3) However, the number of

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(1) Statistical Yearbook, 1355 (1976/7) - Statistical Centre of Iran.

(2) Feed Projection for the Fifth National Development Plan - Pastures Technical Department, Forestry and Pastures Organization (of Iran), 1350 (1971/2).

(3) DEHBOD, A., Land Ownership and Use in Iran, CENTO Symposium on Rural Development, Tehran, 1342 (1963/4).

villages enumerated in that census, 51,300, was far short of the estimated number of the Iranian villages, which was believed to be close to 65,000 before the beginning of land reform. Nevertheless, it was the general consensus that the private holdings accounted for 75-85 percent of the total holdings.

According to the agricultural census of 1339 (1960/1) the total area of agricultural holdings in Iran in that year consisted of 54.8 percent share-cropping, 7.4 percent rented, 26.2 percent owner-operated and 11.6 percent mixed tenures (Table 44).(1)

In share-cropping, which was the most common kind of land tenure in Iran, the five traditional production inputs were land, water, seed, oxen and labour. Although there were many local and case variations, usually the harvested crop was divided into five equal shares for those inputs and the landlord's share varied from 20 to 80 percent, but more often it was 60 percent of the output.

Granting the exceptions, most share-croppers lived under semi-slavery conditions. Many landlords, apart from their ordinary share of the crop, used to levy some extra dues on their tenants and often they expected the tenants to provide some personal services for them. Distribution or redistribution of land was entirely at the discretion of landlords and they could eject their tenants without any reason and with a minimal or no compensation. Landlords were usually the main source of loans, and they mostly tried to keep their tenants in debt in order to prevent their leaving the land if the

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(1) In cash or kind.

Table 44

TENURE OF AGRICULTURAL HOLDINGS IN IRAN
1339
(1960/1)

Type of tenure	Number and area		Percentage	
	Number ('000)	Area ('000 ha)	Number	Area
Share-cropping	814	6,222	34.1	54.8
Rent	235	844	9.9	7.4
Owner-operated	624	2,976	26.2	26.2
Mixed	203	1,315	8.5	11.6
Without land	508	-	21.3	-
Total	2,384	11,357	100.0	100.0

Source: Agricultural Census of 1339 (1960/1) - Department of Public Statistics, Ministry of Interior (of Iran).

opportunity happened to be provided. In short, the share-croppers had no rights and they were mere objects in the financial or political dealings of the landlords.

The circumstances under which the tenants of the Public Domain lands, the endowed lands and the crown lands were working and living were not much different from those of the share-croppers and there existed an urgent economic and social need to reform the land tenure structure in Iran.

4-2-2 First Stage

Before the beginning of the comprehensive land reform in Iran some attempts towards the redistribution of the agricultural lands had been made. In 1296 (1927/8) some of the Public Domain lands in Khorasan and Sistan were transferred to the local farmers. In 1334 (1955/6) the Law for the Sale of the State Lands was approved and in 1337 (1958/9) the Government restarted the transfer of some of the state lands to their tenants and by the time that the Public Domain lands came under the general land reform law, 1342 (1963/4), some 157 villages had already been transferred to 8,366 tenants.(1) In Bahman 1329 (January 1951) the sale of the crown lands to their tenants began and by Bahman 1341 (Februrary 1963) some 42 thousand tenant households had received an area of 200 thousand hectares spreading over 1,400 villages.

Prior to land reform the Iranian Parliament, in particular

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(1) DEHBOD, A., Land Ownership and Use in Iran, CENTO Symposium on Rural Development, Tehran, 1342 (1963/4).

its lower house,[1] was dominated by the big landlords and in every election they forced their tenants to vote for them. By control of Parliament the landlords obstructed or defused every bill which bore any hindrance to their aspirations, and to break their power the Government decided to implement a land reform programme. Therefore, it put pressure on Parliament to approve the Land Reform Bill. In Farvardin 1339 (April 1960) the bill passed through Parliament which put an area limit of 400 and 800 hectares on irrigated and unirrigated lands respectively, on the private agricultural holdings. In making the law, Parliament made sure to render it useless by putting many loopholes and discrepencies in it. In 1340 (1961/2) Parliament was dissolved and on 19th Dey of that year (9th January, 1962) the Council of Ministers approved the amendment of the Land Reform Law, which was in fact a rewritten law, by a cabinet decree.[2]

According to this amendment, which later was known as the original law, every private holding was limited to a maximum of one whole village or parts equivalent to one village except for mechanized farms, holdings which only used wage-earners, gardens and tea farms. Any holding over the limit had to be transferred to its tenants in proportion to the land previously held by them.

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(1) According to the Constitutional Law of the time, half the members of the 60-member upper house of parliament were being appointed by the reigning monarch.

(2) Some years later, after the resumption of the parliamentary system, this decree, together with a further 634 decrees, was approved in one of the earlier sittings of the new parliament.

Soon afterwards, a pilot scheme to implement the law was carried out in Maragheh in East Azarbayejan. The pilot scheme finished in two months and immediately after that the local land reform committees were set up all over the country and the full implementation of the programme started. In the meantime and whenever it was needed a supplementary decree was approved by the cabinet to ease the enforcement of the law.

Many landlords who owned more than a whole village tried to escape the consequences of the enactment of the law by either transferring the holdings in excess of the limits to their relatives or selling them to others.

By implementation of the first stage of land reform some 1,999 villages in whole and 410 villages in part, from the Public Domain lands and also 4,456 villages in whole and 13,847 villages in part, from the private lands were expropriated and the ownership of them was transferred to 973 thousand sitting tenant households (Table 45).

4-2-3 Second Stage

The first stage of land reform did not achieve its political aim which was of paramount importance to the Government, although not much attention had been paid to the economic and social consequences of the implementation of land reform.

The first stage gave rise to the tenants' expectations and prompted resentment among the majority of them who had not benefited from that stage. As a result the relationships between landlords and

Table 45

EXECUTION OF THE FIRST STAGE OF LAND REFORM IN IRAN
1355
(1976/7)

Type of land	Number of divided villages and farms				Value of the divided holdings (Rls. 10^6)	Those who received lands ('000)	
	In whole		In part			Households	Population
	Villages	Farms	Villages	Farms			
Public Domain	1,999	138	410	161	1,360	133	663
Private holdings	4,456	883	13,847	3,642	13,375	840	4,205
Total	6,455	1,021	14,257	3,803	14,735	973	4,868

Source: Statistical Yearbook, 1356 (1977/8) - Statistical Centre of Iran.

tenants were severely strained and many reprehensible actions were committed by both sides (e.g. the sacking of tenant houses by the agents of some landlords or the destruction of the agricultural machinery belonging to the landlords in some villages by their tenants to prevent their registration as mechanized villages) caused some unrest in rural areas of Iran. To improve the situation and especially to reduce the landlords' power further, the Government decided to extend the land reform programme and on 27th Dey, 1341 (17th January, 1963) it decreed an amendment to the original law. The execution of this amendment, which later became known as the Law of the Annexed Articles, was delayed because of some political riots. While dealing with those riots by force, the Government launched a massive propaganda campaign with maximum use of mass media to promote the White Revolution in general and the land reform programme in particular. In 1343 (1964/5) the Regulations for the Implementation of the Annexed Articles were issued to clairfy the amendment, and in Bahman of that year (February 1965) the execution of the second stage of land reform started. This stage, unlike the first one, was an intricate affair and left much room for the administrative manœuvres.

In the second stage, apart from the owners of the exempt lands (e.g. mechanized villages), the owner of every private holding which was not subject to expropriation in the first stage had to opt for one of the following:-

I. Let the land to its tenants on a 30-year basis for an annual rent equal to the average annual income of the owner from the land in the last three years preceding

the lease and subject to quinquennial rental revision.

II. Sell the land to its tenants under conditions agreed by both sides.

III. Give a proportion of the land and the water to the tenants and receive 40 percent of its value as evaluated by the Land Reform Organization. The proportion given, had to be exactly the same as the tenants' share under the current share-cropping pattern.

IV. Form a joint agricultural unit in the village. In this option the majority of the tenants and the landlords or, if it was the case, the majority of the landlords had to agree to run the whole village as a unit and choose a managing committee composed of three representatives, one chosen by the tenants, the second chosen by the landlord(s) and the third by the mutual agreement of both sides.

V. Buy the tenants' rights to the use of land.

The endowed lands were to be treated differently. Those lands which had been endowed for public and religious purposes were to be leased to their tenants for 99 years, subject to quinquennial rental revisions. The Government was to buy the lands which had been endowed for private purposes and transfer them to their tenants, but if the tenants of a land did not agree that land had to be treated as an ordinary private holding.

By the end of 1355 (1976/7) the second stage of land reform was finished in 57,796 villages and 31,675 farms out of the total of 57,826 villages and 31,678 farms which had been subjected to this

stage, and the legal status of some 2,539,604 tenant households were settled (Table 46).

4-2-4 Third Stage

In the second stage of land reform in Iran a majority of landlords chose the first option and a minority of them chose the fourth option of that stage. Most landlords hoped for a change in the political system to regain the control of their lands and power. Therefore, for the majority of tenants the desire to own the lands that they were working on, was not fulfilled. The Government decided to introduce some new measures to satisfy that wish, and subsequently the Bill for Sale and Distribution of the Leased Lands was prepared. This bill was approved by Parliament in Mehr 1347 (October 1968) and later its execution became known as the third stage of land reform.

According to this law, which aimed at eradicating tenancy in the private holdings, all the lands that had been leased and also all the lands that had been put into joint agricultural units in the second stage of land reform, were to be either sold to the tenants or divided between the landlords and the tenants in proportion to the preceding share-cropping pattern. In the case of sale the price of a piece of land was equal to 12 years rent, and in the case of division all lands were treated the same way as the third option of the second stage.

By the end of 1353 (1974/5) some 35,406 landlords had divided their lands between themselves and 112,401 tenant households and

Table 46

EXECUTION OF THE SECOND STAGE OF LAND REFORM IN IRAN
1355
(1976/7)

Subjected		Reformed		Exempted villages			Number of landlords who farm themselves	Number of tenant households whose legal status is settled
Villages	Farms	Villages	Farms	Totally mechanized	Totally uncultivated	Totally garden		
57,826	31,678	57,796	31,675	1,248	6,236	5,628	850,519	2,539,604

Source: Statistical Yearbook, 1356 (1977/8) - Statistical Centre of Iran.

some 337,137 landlords had sold their lands to 1,214,853 tenant households (Table 47).

4-2-5 Results

The Iranian land reform achieved its main goal, the destruction of the power bases of the large landlords. The Government gave the highest priority on its agenda to the land reform programme, put its own survival at stake, ran the risk of facing some political riots, mobilized all its resources at all levels and pursued its target with a determined single-mindedness to accomplish that aim, but on the way it also created many problems most of which still remain.

Due to insufficient studies and preparations for the implementation of the land reform programme, the procedures were worked out on a trial and error basis and in reaction to various events and outcomes the whole programme was adjusted and some new courses of action were taken. This meant that the Government instead of leading the events to establish a guided economy, was following the events.(1) Consequently, the execution of the programme took much longer than was necessary because a majority of villages had to be subjected to all three stages of land reform.

In the agricultural sample census of 1353 (1974/5) four categories of tenure have been distinguished in the agricultural units

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(1) This was interesting because leading the events was one of the officially declared policies of the Government.

Table 47

EXECUTION OF THE THIRD STAGE OF LAND REFORM IN IRAN
1353
(1974/5)

Division option		Sale option	
Number of landlords	Number of tenants whose legal status is settled	Number of landlords	Number of tenants whose legal status is settled
35,406	112,401	337,137	1,214,853

Source: Statistical Yearbook, 1356 (1977/8) - Statistical Centre of Iran.

with land in Iran: owner-operated, tenanted, mixed[1] and others[2]. The respective shares of these categories in the total number of agricultural units with land were 92, 2.2, 2.6 and 3.2 percent; while the respective shares of them in the total area of agricultural units with land were 90.6, 3.2, 2.9 and 3.3 percent (Table 48).

One of the basic policies of the land reform programme in Iran was that every tenant should own exactly the same piece of land that he held the tenancy right to. This policy was adopted because its implementation was easy and quick. To preserve the continuity of production, (immediately after the expropriation of the land) the conditional title of the whole land was given to its tenants until the unconditional title belonging to every tenant, according to his share in the Boneh system[3], could be worked out. The conditional title gave every tenant of every expropriated land the common ownership (Moshaa right) of it, in proportion to the share of the land previously held by the tenant. By the execution of the land reform programme, every tenant was granted the unconditional titles of all the parcels of

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(1) Owner-operated and tenanted.

(2) Mainly occupation without permission.

(3) In most villages of Iran, tenants worked under the Boneh system (the name, but not the principles, varied in different areas) which meant a village was divided into different plots of land and every plot was allocated to a certain crop. All the tenants worked together on all the plots (like the members of a co-operative) but everyone kept his own individual right to a certain parcel in every plot.

Table 48

TENURE OF AGRICULTURAL UNITS WITH LAND IN IRAN
1353
(1974/5)

	Unit size (ha)	Owner-operated		Tenanted		Mixed(1)		Others		Total	
		Number	Area	Number	Area	Number	Area	Number	Area	Number	Area
Number & Area (ha)	Less than 1	677,973	237,304	17,707	6,017	16,899	7,718	21,695	8,865	734,274	259,904
	1-less than 2	291,589	401,982	5,523	7,670	11,730	16,740	13,351	17,312	322,193	443,704
	2-less than 5	495,261	1,584,485	10,910	36,901	14,354	48,872	21,067	62,634	541,592	1,732,892
	5-less than 10	399,710	2,755,072	7,665	53,524	7,541	51,757	13,018	93,222	427,934	2,953,476
	10-less than 50	395,954	6,923,042	10,314	198,408	11,710	200,250	10,096	179,064	428,074	7,500,762
	50-less than 100	14,277	941,344	800	52,891	682	45,283	510	34,204	16,269	1,073,722
	100 or more	7,689	2,034,864	750	160,725	496	111,464	618	145,876	9,553	2,452,929
	Total	2,282,453	14,878,093	53,669	516,037	63,412	482,084	80,355	541,177	2,479,889	16,417,391
Percentage	Less than 1	92.3	91.3	2.4	2.3	2.3	3.0	3.0	3.4	100.0	100.0
	1-less than 2	90.5	90.6	1.7	1.7	3.6	3.8	4.2	3.9	100.0	100.0
	2-less than 5	91.4	91.5	2.0	2.1	2.7	2.8	3.9	3.6	100.0	100.0
	5-less than 10	93.4	93.3	1.8	1.8	1.8	1.7	3.0	3.2	100.0	100.0
	10-less than 50	92.5	92.3	2.4	2.6	2.7	2.7	2.4	2.4	100.0	100.0
	50-less than 100	87.8	87.7	4.9	4.9	4.2	4.2	3.1	3.2	100.0	100.0
	100 or more	80.5	83.0	7.8	6.6	5.2	4.5	6.5	5.9	100.0	100.0
	Total	92.0	90.6	2.2	3.2	2.6	2.9	3.2	3.3	100.0	100.0

(1) Owner-operated and tenanted.

Source: Agricultural Sample Census of 1353 (1974/5) - Statistical Centre of Iran.

land over which he had had the tenancy rights. In other words, an overwhelming majority of tenants received some parcels of land which were georgraphically separated.

In the Iranian land reform neither a maximum nor a minimum was imposed on the size of a holding. As a result, there was an inverse ratio between the number of tenants in a piece of land before land reform, and the average size of the holdings derived from that piece of land after land reform. Therefore, where the land was supporting more people and/or the labour intensive production methods were in use before land reform (e.g. the Caspian littoral), the average size of the holdings was smaller after land reform. In other words, some of the best land in Iran was broken up into very small holdings, most of which were suitable only for subsistence farming, and some of the best farmers in the country had to be content with small pieces of land.

In 1353 (1974/5), according to the agricultural sample census of the same year, out of the total number of agricultural units in Iran some 92.7 percent were one-owner holdings, 7.3 percent were more-than-one-owner holdings and the share of units with unreported forms of ownership was negligible. The shares of the areas of one-owner units, more-than-one-owner units and units with unreported forms of ownership in the total area of the agricultual units were 83.9, 15.3 and 0.8 percent, respectively (Table 49).

According to the above-mentioned sample census, the average size of an agricultural unit in Iran was 6.62 hectares in 1353 (1974/5). The average size of a unit ranged from 0.35 hectare in the

Table 49

OWNERSHIP OF AGRICULTURAL UNITS IN IRAN
1353
(1974/5)

	Unit size (ha)	One owner		More than one owner		Not reported		Total	
		Number	Area	Number	Area	Number	Area	Number	Area
Number & Area (ha)	Without land	496,902	0	16,460	0	24	0	513,386	0
	Less than 1	693,604	243,032	40,338	16,563	332	309	734,274	259,904
	1-less than 2	302,539	416,836	19,654	26,868	0	0	322,193	443,704
	2-less than 5	507,978	1,621,450	33,614	111,442	0	0	541,592	1,732,892
	5-less than 10	385,910	2,663,300	41,972	289,844	52	332	427,934	2,953,476
	10-less than 50	368,825	6,354,491	59,008	1,141,912	241	4,361	428,074	7,500,764
	50-less than 100	12,067	793,111	3,974	265,744	228	14,867	16,269	1,073,722
	100 or more	6,573	1,684,738	2,716	655,099	264	113,092	9,553	2,452,929
	Total	2,774,398	13,976,958	217,736	2,507,472	1,141	132,961	2,993,275	16,417,391
Percentage	Without land	96.8	0.0	3.2	0.0	+	0.0	100.0	0.0
	Less than 1	94.5	93.5	5.5	6.4	+	0.1	100.0	100.0
	1-less than 2	93.9	93.9	6.1	6.1	0.0	0.0	100.0	100.0
	2-less than 5	93.8	93.6	6.2	6.4	0.0	0.0	100.0	100.0
	5-less than 10	90.2	90.2	9.8	9.8	+	+	100.0	100.0
	10-less than 50	86.2	84.7	13.8	15.2	+	0.1	100.0	100.0
	50-less than 100	74.2	73.9	24.4	24.7	1.4	1.4	100.0	100.0
	100 or more	68.8	68.7	28.4	26.7	2.8	4.6	100.0	100.0
	Total	92.7	83.9	7.3	15.3	+	0.8	100.0	100.0

Source: Agricultural Sample Census of 1353 (1974/5) - Statistical Centre of Iran.

"less than 1 hectare" group to 256.77 hectares in the "100 hectares or more" group. The "less than 1 hectare" group contained the highest number of units, 29.6 percent of total, while the area covered by the "10-less than 50 hectares" group was more than any other group, 45.7 percent of total. The distribution of land among agricultural units was very uneven. At one end 29.6 percent of the units were established on 1.6 percent of the total area of agricultural units, whereas at the other end 0.4 percent of the units had 14.9 percent of the total area of agricultural units in Iran at their disposal (Table 50 & Figure 4).

There was no information available in the agricultural sample census of 1353 (1974/5) about the number of parcels of land in agricultural units, however, the agricultural sample census of 1350 (1971/2), which had been carried out on a smaller scale than that of 1353 (1974/5), had covered this characteristic of the agricultural units of Iran. According to that sample census the average size of an agricultural unit in Iran in 1350 (1971/2) was 6.99 hectares, but on average every unit was constituted of 8.5 separate parcels of land and the average area of a parcel was only 0.82 hectare. The average size of a parcel of land ranged from 0.14 hectare among the units of the "less than 1 hectare" group to 16.59 hectares among the units of the "100 hectares or more" group, while for the units classified as "10-less than 50 hectares" which had the largest share in the total area of agricultural units (44.3 percent), the average size of a parcel of land was 1.18 hectare (Table 51 & Figure 5).

The paucity of size of most land parcels in Iran has created

Table 50

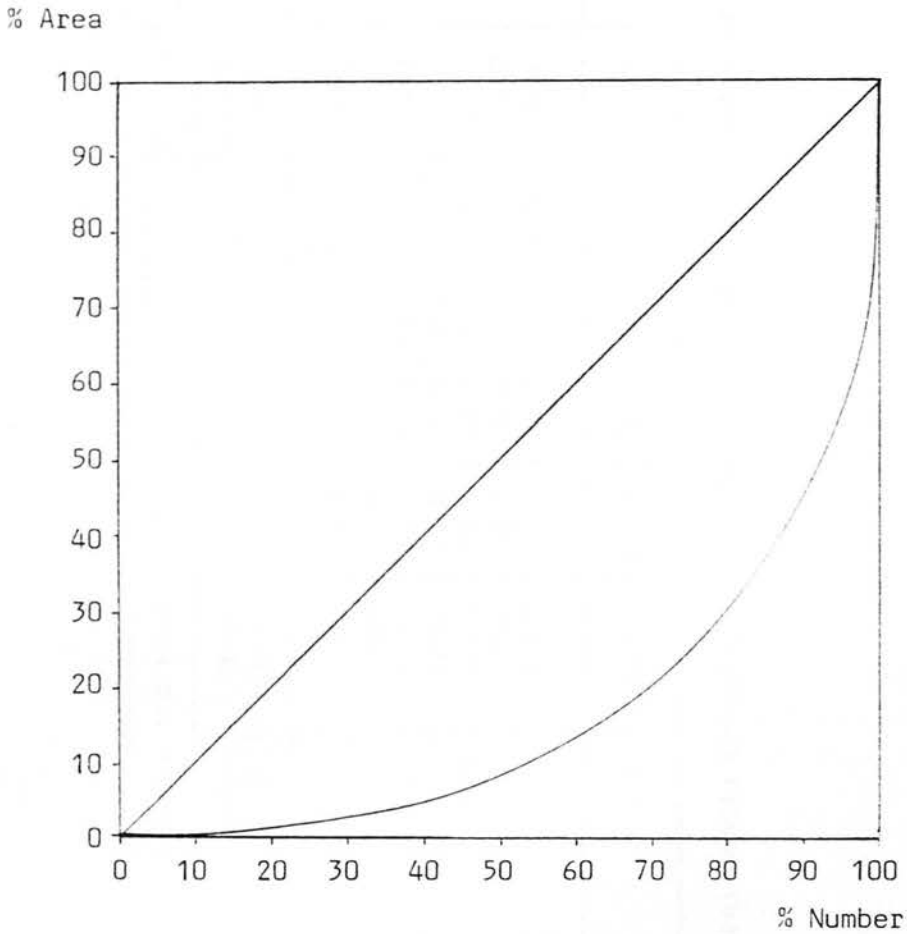
NUMBER AND AREA OF AGRICULTURAL UNITS WITH LAND IN IRAN
1353
(1974/5)

Unit size (ha)	Number and area		Percentage		Accumulative percentage		Average size of a unit (ha)
	Number	Area (ha)	Number	Area	Number	Area	
Less than 1	734,274	259,904	29.6	1.6	29.6	1.6	0.35
1-less than 2	322,193	443,704	13.0	2.7	42.6	4.3	1.38
2-less than 5	541,592	1,732,892	21.8	10.6	64.4	14.9	3.20
5-less than 10	427,934	2,953,476	17.3	18.0	81.7	32.9	6.90
10-less than 50	428,074	7,500,764	17.3	45.7	99.0	78.6	17.52
50-less than 100	16,269	1,073,722	0.6	6.5	99.6	85.1	66.00
100 or more	9,553	2,452,929	0.4	14.9	100.0	100.0	256.77
Total	2,479,889	16,417,391	100.0	100.0	-	-	6.62

Source: Agricultural Sample Census of 1353 (1974/5) - Statistical Centre of Iran.

Figure 4

DISTRIBUTION OF AGRICULTURAL UNITS WITH LAND IN IRAN
1353
(1974/5)



Source: Drawn on the basis of the figures of Table 50.

Table 51

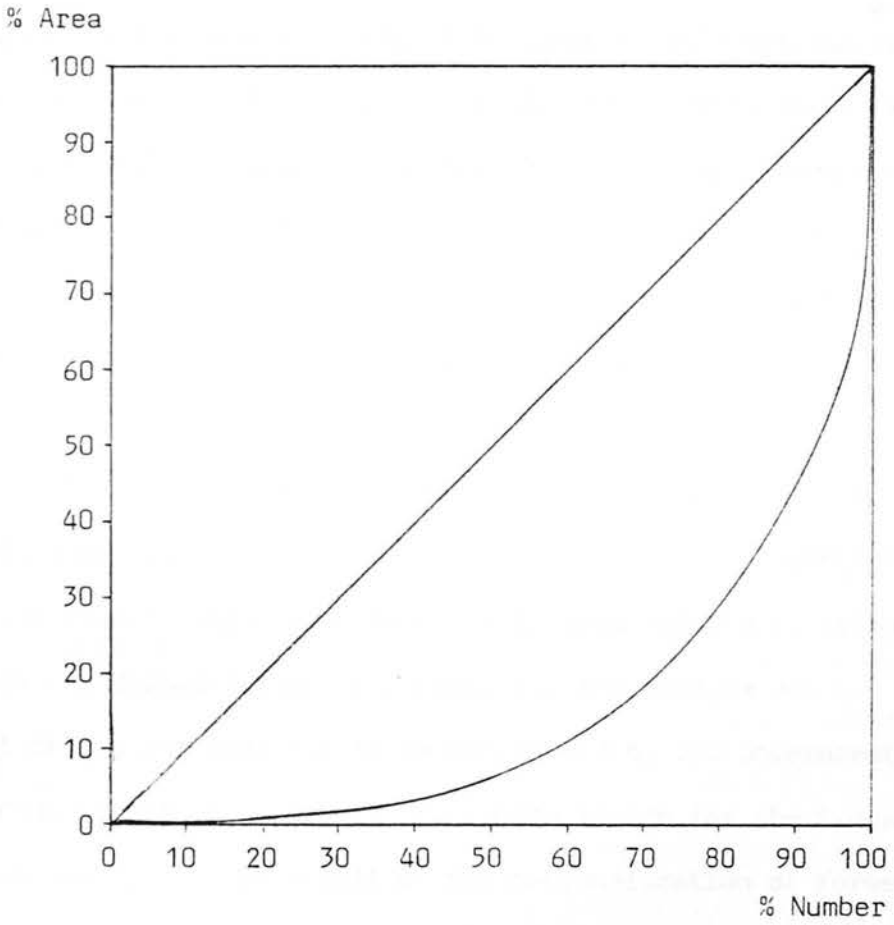
NUMBER AND AREA OF AGRICULTURAL UNITS WITH LAND IN IRAN
1350
(1971/2)

Unit size (ha)	Number and Area		Percentage		Accumulative percentage		Average size of a unit (ha)	Number of parcels ('000)	Average number of parcels in a unit	Average size of a parcel (ha)
	Number ('000)	Area ('000 ha)	Number	Area	Number	Area				
Less than 1	771	369	33.3	2.3	33.3	2.3	0.48	2,625	3.4	0.14
1-less than 2	316	498	13.6	3.1	46.9	5.4	1.58	1,813	5.7	0.27
2-less than 5	490	1,845	21.2	11.4	68.1	16.8	3.77	4,208	8.6	0.44
5-less than 10	364	3,048	15.8	18.9	83.9	35.7	8.37	4,543	12.5	0.67
10-less than 50	348	7,157	15.1	44.3	99.0	80.8	20.57	6,075	17.5	1.18
50-less than 100	14	1,065	0.6	6.6	99.6	86.6	76.07	256	18.3	4.16
100 or more	9	2,173	0.4	13.4	100.0	100.0	241.44	131	14.6	16.59
Total	2,311	16,154	100.0	100.0	-	-	6.99	19,651	8.5	0.82

Source: Agricultural Sample Census of 1350 (1971/2) - Statistical Centre of Iran.

Figure 5

DISTRIBUTION OF AGRICULTURAL UNITS WITH LAND IN IRAN
1350
(1971/2)



Source: Drawn on the basis of the figures of Table 51.

many problems including some difficulties in allocation of water and usage of machinery and equipment.

4-3 Nationalization of Forests and Pastures

The White Revolution, which started by a referendum on 6th Bahman, 1341 (26th January 1963), had six initial articles, the second of which dealt with the nationalization of all forests and pastures in Iran. The Law for Protection and Use of Forests and Pastures was approved in Mordad 1346 (August 1967) and was amended in Farvardin 1348 (April 1969), in Tir 1349 (July 1970) and in Khordad 1354 (June 1975). According to the article all the lands outside the official or the traditional boundaries of rural settlements and towns were nationalized, and in the law and its amendments the necessary rules and regulations to carry out the Government's objectives were laid down.

The nationalization of forests and pastures had some environmental, financial and political significance. The Government, by law, was able to apply some measures to preserve the existing and restore the ruined forests and pastures, and because any use of any forest or pasture area was to be sanctioned by the Government, the issue of permits provided some extra income for the treasury. But the most important result of the nationalization of forests and pastures was the legal power that the Government acquired to exert its authority on the nomadic tribes whose traditional grazing lands were nationalized and whose livelihood became dependent on obtaining the necessary grazing permits.

In the original law the sale and the lease of nationalized

lands to private sector was permitted, but after some misuse of the former right, in the 1349 (1970/1) amendment the sale permission was withdrawn[1] and only the lease of the nationalized lands was allowed.

By the end of 1345 (1966/7) some 38 thousand hectares of new forests were planted, 1.5 million hectares of ruined pastures were restored and some 800 thousand hectares of dunes were stabilized.

The nationalization of forests and pastures and the related laws, by-laws and amendments gave the Government the legal right to apply the necessary measures to keep the balance between the potential and the actual usage of the forests and the pastures and restore those which had been damaged or ruined. However, due to the lack of a cadastral survey and the scarcity of land registration records at that time, it was almost impossible to distinguish the traditional boundaries of the rural settlements, especially of those which were surrounded by the newly nationalized lands. Many people tried to take advantage of the situation and keep some of those forest or pasture lands as private holdings and prevent them from being registered as nationalized lands. All the trees in some parcels of forest land were cleared off and these parcels as well as vast areas of pasture land were ploughed, cultivated and presented as traditionally-cultivated unirrigated lands. These lands constituted most of the increase in the total area of agricultural units which went up

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(1) Except for special purposes to the Pahlavi Foundation, the officially acknowledged charity organizations and as the share of the Agricultural Development Bank of Iran in private companies.

from 11.4 million hectares in 1339 (1960/1) to 16.4 million hectares in 1353 (1974/5). Most of these newly cultivated lands were used to produce wheat and barley to replace some high potential lands which were being switched to production of other crops, especially those with no government control on their prices. Gradually, the average quality of lands which were allocated to production of wheat and barley deteriorated and in spite of some general technical improvements and also some government efforts like the implementation of the Wheat Impact Project[1], the average yield of production of these two cereals slumped, and even in the irrigated lands they remained almost the same. The average yields of total production of wheat in 1339 (1960/1)[2], 1352 (1973/4)[3] and 1353 (1974/5)[4] were 728, 718 and 483 kilogrammes per hectare respectively, while the corresponding figures for the average yields of wheat on irrigated lands were 1,206, 1,455 and 1,146 kilogrammes per hectare respectively.

A high proportion of the newly added unirrigated lands were pastures of high agricultural potential but after the transfer due to the usually insufficient rainfall became poor unirrigated lands and faced the serious danger of erosion and of turning into deserts.

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(1) See section 7 (7-5).

(2) Agricultural Census of 1339 (1960/1)- Department of Public Statistics, Ministry of Interior (of Iran).

(3) Agricultural Census of 1352 (1973/4) - Statistical Centre of Iran.

(4) Agricultural Sample Census of 1353 (1974/5) - Statistical Centre of Iran.

4-4 Development of Lands Downstream of Dams

In Ordibehesht 1347 (May 1968) the Law of Establishment of Companies Engaged in Developing Lands Downstream of a Dam was approved by Parliament and on 17th Shahrivar of the same year (8th September, 1968) the Regulations Governing the Development of Lands Downstream of a Dam was decreed by the Council of Ministers. The law and the decree, together with some other amendments to some other laws, gave the then Ministry of Water and Power (now Ministry of Energy) the right to buy all the private lands downstream of dams, provided the total area of land being developed downstream of a dam was not less than five thousand hectares.

After the purchase of any land downstream of a dam, the Ministry was to utilize it in one of the following ways:-

I. Form a state-owned agro-industrial company to develop the land.

II. Enter a joint venture with private investors, either Iranian or foreign, to form an agro-industrial company, and lease the land to the company to develop.

III. Let the land to a private agro-industrial company, either Iranian or foreign, to develop.

In the last two options the initial period of lease was at most 30 years, but the lease was renewable. The area of any leased land had to be more than 1,000 hectares.

The Ministry was to provide any private company, accepted as a lessee, with:

- The result of its own studies on the land.

- Water and, if possible, power at the ordinary agricultural tariff.
- Access roads to each plot of 1,000 hectares.
- All the water and the drainage canals to and from each plot of 100 hectares.

If any of the last two groups of facilities was not ready, by mutual consent of both sides, the company could construct them under the supervision of the Ministry and then debit the cost to the Ministry to deduct it from the rent that the company was to pay for the land.

Any private agro-industrial company, interested in being first a prospective and then an actual lease-holder of a piece of land downstream of a dam, had to:

- Carry out its own supplementary studies, if considered to be necessary, and produce a feasibility report to submit to the Ministry for approval. If and after the lease contract was signed, the costs of these studies were accepted as a part of the investment of the company. Afterwards, the company had to develop the land according to that feasibility report, which apart from the technical and financial studies of the proposed project had to cover a training programme for the Iranian workers and replacement of the foreign staff by them.
- Build the internal roads of every plot of 1,000 hectares.
- Construct the internal water and drainage canals of every plot of 100 hectares.

- Pay annually a mutually agreed amount of rent to the Ministry (this annual amount, according to the lease contracts, was to be either 2½ percent of the value of the crop or Rls. 1,500 per hectare[1] whichever was more, but actually the latter has always been the rent).

Apart from having to comply with these terms the private company (the lessee) could work like any other agricultural unit in the country.

All the above-mentioned duties of the Ministry of Water and Power were transferred to the then Ministry of Agriculture and Natural Resources (now the Ministry of Agriculture and Rural Development) when the position of the Minister of Water and Power of the time, who was the initiator of the law, was changed and he became the Minister of Agriculture and Natural Resources.

Since the introduction of the law only seven private agro-industrial companies have been formed to operate under the provisions of this law. They all worked in Khuzestan and six of them were engaged in agricultural activities in 68 thousand hectares of land downstream from the Dez Dam and the seventh one was engaged in 33 thousand hectares of land downstream of the Karoon Dam.

Enforcement of the Law of Establishment of Companies Engaged in Developing Lands Downstream of a Dam in some areas and expropriation of the lands in those areas caused some serious enmity among their former owners in spite of various govenment subsidies and, in

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(1) About £10 with the official rate of exchange.

particular, because many of those owners had no other job opportunities at the time but to work for the new companies, either state-owned or private. In some instances these animosities led some of the owners to resort to anything, from slow working to sabotage, which could impare the smooth running of those companies.

The financial states of the state-owned agro-industrial companies were not clear, because most of their capital and current costs were parts of the several general programmes which were being carried out by the responsible ministry and no document about all the costs, direct and indirect, of any single project has ever been published.

Four private agro-industrial companies working downstream from the Dez Dam were struggling to survive in very difficult financial situations and the Government was forced either to take them over or to rescue them. (1)

4-5 Agricultural Poles

In Ordibehesht and Khordad 1354 (May 1975) the Law of Agricultural Development in Agricultural Poles was passed through Parliament. According to this law, some 20 regions in Iran were declared agricultural poles, and a map of every one of them was a detachable part of the law. These regions were some of the best agricultural areas in Iran, and at least a part of every one of them, owing to some government investments in dams and/or irrigation networks and/or groups of deep wells, had or was about to have a regular flow of water for agricultural use.

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(1) See section 4-6-3.

The law also allowed the Ministry of Agriculture and Natural Resources (the Ministry), with the approval of the Economic Council,[1] to declare any other region an agricultural pole, provided:

Either The landowners of half the area of the region, with a regular flow of water of at least 200 litres per second and high water and soil potentials, asked for it.

Or The region received a regular flow of water after some government investments.

According to this law the Ministry had to prepare a general and comprehensive plan (the plan) for every agricultural pole, covering:

- The programme for the control of water, both surface and underground, and its maximum agricultural use including the detailed plans for irrigation and drainage networks.
- The best possible ways of crop production, animal husbandry, fruit and other garden production and other agricultural activities.
- The possibilities of industrial and mining development.
- The programmes for relocation and/or amalgamation and/or consolidation of holdings to operate as farm corporations, or production co-operatives, or agricultural companies, or one-owner holdings, or more-than-one-owner holdings.
- The required government investments to execute the plan.

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(1) According to the Law of Plan and Budget it was consisted of the Prime Minister and some of the ministers and anybody else whose presence considered to be necessary for a special meeting.

If those landowners, whose lands were situated in an agricultural pole, deprecated the plan, they had to sell their land to the Ministry; and if a landowner accepted the plan but tried to impede it in practice, the Ministry had the right to expropriate the land and pay its price. Otherwise the landowners had to conform to the plan and when the new locations of their lands and/or the new form of agricultural entity, within which they had to operate (e.g. farm corporations etc.), were determined for them they had to produce their detailed programmes of investment and operation, within the framework of the plan and execute those programmes upon the approval of the Ministry.

To implement the Law of Agricultural Development in Agricultural Poles with the maximum possible speed some extra and special powers were contemplated for the Ministry and all the other government organizations were compelled to co-operate with the Ministry about everything concerned with the agricultural poles. Any activity, which was usually under the jurisdiction of another government organization, in these poles had to be approved by the Ministry. A committee composed of the Minister of Agriculture and Natural Resources, the Minister of Co-operation and Rural Affairs, the Minister of Energy, the Attorney General and the President of the Properties and Documents Registration Organization or their representatives, was vested with the required powers to decide about the price of land that the Ministry wanted to buy or expropriate, as well as the power to calculate and compare the price of land and the buildings asset, with its relocated substitute and make the necessary

adjustments. To carry out its duties, the committee was to appoint expert surveyors for every case and take their evidance into its decision making. The committee's decisions were final and irreversable and there was no appeal against them. Before the start of the implementation of the law, all the execution procedures were to be approved by the Council of Ministers.

The enforcement of the law was very costly for the Government and was not implemented. The law was initiated and approved after the time of the large increase in Iran's oil revenue and when every government organization was trying to acquire a larger share from the increased revenue. At that time the downturn of the economy had already started and many government plans were gradually being dropped or postponed. The execution of the Law of Agricultural Development in Agricultural Poles was one of them.

4-6 Land Use

During the implementation of the land reform programme gradually it became clear that, due to the pre-reform tenure arrangements, in many areas of Iran the agricultural lands were being broken into very small holdings. Units accruing from the execution of the land reform programme could be divided into two major groups; the commercial farming units and the subsistence farming units. The commercial farming group was composed of the exempted villages, in whole or in part, and also those holdings where the owners had chosen the division option of the second or the third stages of land reform. But this was only possible when after the division, the shares were still large enough to form commercial farming units.

Most other reformed holdings fell into the subsistence farming group. There is not much special information available about the exclusive characteristics of the units in any of these groups or the number of units in every group.

Different criteria have been suggested to distinguish between the commercial and the subsistence farming units.

Size is the basic criterion used in some studies to differentiate between a commercial and a subsistence farming unit. For example in a study of commercial agriculture in Iran,[1] a unit was considered to be a commercial farming unit if it could be classified as one of the followings:-

I. A unit with 6 hectares of orchard or more.

II. A unit with 10 hectares of irrigated land or more.

III. A unit with 30 hectares of unirrigated land or more.

IV. A unit with 30 head of large livestock[2] or more.

V. A unit with 300 head of small livestock[3] or more.

VI. A unit with 6,000 head of poultry or more.

VII. A unit with diversified activities, at a level comparable to minimal requirements mentioned above.

Value of sales of agricultural products has also been suggested as a criterion to define a commercial farming unit. For

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(1) Commercial Agriculture in Iran - Agricultural Development Bank of Iran, Tehran, October 1975.

(2) Cattle, bufallos, etc.

(3) Sheep, goats, etc.

example, in a study by Snodgrass and Wallace[1], the minimum value of sale of agricultural products of a commercial farm in the United States of America in 1959, was considered to be $2,500.

In another study it has been suggested that subsistence agriculture is predominant if more than 50 percent of the production is consumed by the agricultural population.[2]

Due to the lack of data, no single criterion seems appropriate to be used to estimate the number of the commercial or the subsistence farming units in Iran. Nevertheless, the sample census of 1353 (1974/5) showed that out of the total number of agricultural units with large livestock in that year, 80.3 percent did not sell any product of these animals, while 16 percent sold less than half their products and only 3.7 percent sold more than half the products they acquired from their large livestock. The corresponding figures for the agricultural units with small livestock were 50.7, 38.5 and 10.8 percent respectively, whereas for the units with poultry the similar figures were 83.5, 14.9 and 1.6 percent respectively (Table 52). However, it should be considered that for a majority of the agricultural units in Iran keeping few animals is a complementary activity, and only in a relatively small proportion of the units, is animal husbandry the main line of activity. Conversely, in most agricultural units with land cash crops and/or permanent crops production is the main occupation. In 1353 (1974/5) out of the total

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(1) SNODGRASS, M. M. and WALLACE, L. T., Agriculture, Economics and Growth - Applton-Century-Crofts, New York, 1964.

(2) MALASSIS, L., Agriculture et Processus du Developpement - UNESCO, Paris, 1973.

SALE OF ANIMAL PRODUCTS FROM AGRICULTURAL UNITS IN IRAN
1353
(1974/5)

Percent of units

Unit size (ha) \ Proportion sold	Large livestock(1)				Small livestock(2)				Poultry(3)			
	None	Less than half	More than half	Total	None	Less than half	More than half	Total	None	Less than half	More than half	Total
Without land	78.6	16.6	4.8	100.0	50.7	38.5	10.8	100.0	83.5	14.9	1.6	100.0
Less than 1	80.4	14.7	4.9	100.0	61.3	27.7	11.0	100.0	87.0	10.9	2.1	100.0
1-less than 2	84.6	12.9	2.5	100.0	59.7	34.3	6.0	100.0	81.0	17.5	1.5	100.0
2-less than 5	82.3	14.8	2.9	100.0	58.6	33.4	8.0	100.0	83.8	14.7	1.5	100.0
5-less than 10	79.0	17.8	3.2	100.0	50.1	40.8	9.1	100.0	86.0	12.8	1.2	100.0
10-less than 50	78.6	18.0	3.4	100.0	42.2	44.5	13.3	100.0	85.3	13.4	1.3	100.0
50-less than 100	64.0	30.2	5.8	100.0	24.2	50.6	25.2	100.0	87.6	11.0	1.4	100.0
100 or more	65.0	26.0	9.0	100.0	22.0	46.4	31.6	100.0	85.8	11.9	2.3	100.0
Total	80.3	16.0	3.7	100.0	52.9	36.9	10.2	100.0	84.6	13.8	1.6	100.0

(1) Cattle, buffalos, camels, etc.

(2) Sheep, goats, etc.

(3) Hens, turkeys, ducks, etc.

Source: Agricultural Sample Census of 1353 (1974/5) - Statistical Centre of Iran.

agricultural units with land which were engaged in cash crops production[1], 51 percent did not sell any of their products, 26.7 percent sold less than half of what they had produced and 22.3 percent sold more than half of their products. The corresponding figures for permanent crop producers in the agricultural units with land were 49.5, 24.9 and 25.6 percent respectively (Table 53).

There was no other information available in the sample census of 1353 (1974/5), or any other census, about the value of the sold agricultural products or the proportion of the value of one type of sold product (e.g. permanent crops) of a unit in the total value of the sold products (i.e. animal products, cash crops and permanent crops) of the same unit. It was not also clear whether the figures mentioned earlier excluded the bartered products. As a result of these deficiencies, not all the units which had sold more than 50 percent of one type of product could be considered as commercial farming units. However, it was possible to make an estimate of the number of the commercial farming units by application of a group of criteria.

The number of landusers (farmers and their families) supported by one hectare of irrigated land, or its equivalent, in different categories was calculated in the following way:

In

$$\frac{Y_{I.L.}}{Y_{U.L.}} = K = \text{Co-efficient of yields}$$

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(1) Including fodder.

Table 53

SALE OF CROPS FROM AGRICULTURAL UNITS IN IRAN
1353
(1974/5)

Percent of units

Unit size (ha) \ Proportion sold	Cash crops				Permanent crops			
	None	Less than half	More than half	Total	None	Less than half	More than half	Total
Less than 1	55.5	25.9	18.6	100.0	47.7	25.5	26.8	100.0
1-less than 2	39.5	28.5	32.0	100.0	47.5	22.5	30.0	100.0
2-less than 5	51.1	26.6	22.3	100.0	51.2	26.5	22.3	100.0
5-less than 10	59.2	26.5	14.3	100.0	52.8	25.2	22.0	100.0
10-less than 50	48.4	28.2	23.4	100.0	54.4	24.5	21.1	100.0
50-less than 100	1.0	1.9	97.1	100.0	2.8	2.6	94.6	100.0
100 or more	3.0	0.2	96.8	100.0	0.0	0.4	99.6	100.0
Total	51.0	26.7	22.3	100.0	49.5	24.9	25.6	100.0

Source: Agricultural Sample Census of 1353 (1974/5) - Statistical Centre of Iran.

where:

$Y_{I.L.}$ = Average yield in one hectare irrigated land

$Y_{U.L.}$ = Average yield in one hectare unirrigated land

considering the yields of all the major crops that are being produced in Iran both in the irrigated and the unirrigated lands, especially wheat and barley (1) which usually account for more than 85 percent of the total cultivated unirrigated area, it was assumed that on average for all products in Iran:

$K = 3$

On that basis the irrigated equivalents of the total under-cultivation areas (i.e. total agricultural areas excluding fallow lands) in different categories, were calculated. (2) From these figures and the total numbers of the landusers in different size categories, (3 & 4) the numbers of landusers supported by one hectare of irrigated land in different categories in 1353 (1974/5) were calculated. These numbers ranged from 15.4 persons in the "less than 1 hectare" group to 0.1 persons in the "100 hectares or more" group (Tables 54).

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(1) According to the agricultural sample census of 1350 (1971/2)
for wheat and barley combined K = 3
According to the agricultural census of 1352 (1973/4)
for wheat K = 3.1
for barley K = 2.9
The production figures of wheat and, naturally, yields per hectare, in the agricultural sample census of 1353 (1974/5), as it is said in the census report, were deficient.
For barley K = 3.8

(2) See column I Table 54.

(3) See column II Table 54.

(4) Agricultural Sample Census of 1353 (1974/5) - Statistical Centre of Iran.

Table 54

(1)
DENSITY OF LANDUSERS IN IRAN
1353
(1974/5)

Unit size (ha)	Under-cultivation area in irrigated equivalent[2] (ha)	Population of the landusers	Density of landusers (Person/ha)
	I	II	III = II : I
Less than 1	197,086	3,207,785	15.4
1-less than 2	289,545	1,543,214	5.3
2-less than 5	834,300	2,694,577	3.2
5-less than 10	1,124,423	2,262,704	2.0
10-less than 50	2,422,422	2,545,598	1.1
50-less than 100	393,798	125,709	0.3
100 or more	955,744	62,385	0.1
Total	6,217,318	12,261,972	2.0

(1) Farmers and their households.

(2) Without fallow lands.

Source: See section 4-6.

The average amount of land under cultivation in the "less than 1 hectare" group is the equivalent of 0.27 hectare and the corresponding figure in the "1-less than 2 hectares" group is the equivalent of 0.9 hectare of irrigated land. Allowing for some possible and very rare exceptions, it is unlikely that any unit in these two categories is a commercial farming unit. The sold portions of products in these categories in 1353 (1974/5), (Tables 52 and 53), were probably traded in for other agricultural commodities and those units where more than half their work was being carried out by wage-earners (Table 25), probably belonged to those landowners whose main occupations were other than managing those units. This phenomenon is common in particular in countrysides near the large cities and in the Caspian littoral, and usually there is a house on every unit which serves as a holiday-home for the landowner. Therefore, none of the units in the first two categories were considered to be a commercial farming unit.

Although the average number of landusers per hectare in the "2-less than 5 hectares" group was still high and the average amount of land under cultivation in this group was only the equivalent of 1.54 hectares of irrigated land, close to the upper limit of this size category, the probability of existence of commercial units was higher. Hence, those units where more than half their work in 1353 (1974/5) had been carried out by wage-earners (25 thousand units) were considered to be commercial farming units.

All the units in the "5-less than 10 hectares" and the "10-less than 50 hectares" group in which more than half the cash crops

were sold in 1353 (1974/5), were accounted as commercial farming units (161 thousand units). The cash crop sale ratios were applied because the total number of cash crop producers was almost the same as the total number of agricultural units.

All the units in the last two size categories (50 hectares or more) were considered to be commercial farming units (26 thousand units) even though in 1353 (1974/5) in 2.9 percent of the units in the "50-less than 100 hectares" group and in 3.2 percent of the units in the "100 hectares or more" group, either nothing or less than half of their cash crops were sold. The reason was that those animal husbandry units which produced their own fodder and mostly or only sold animal products and also a few units with processing plants which mostly or only sold the processed products, were enumerated as units which sold less than half their products or units with no cash crop sale.

It is common for most rural families to keep a few animals for their own benefit. Therefore, in the "without land" goup only those units where more than half their work was carried out by wage-earners, were considered to be commercial farming units (9 thousand units).

In this way the total number of commercial farming units in Iran in 1353 (1974/5) was estimated to be around 221 thousand or 7.4 percent of the total number of agricultural units. To estimate the total area of commercial units in Iran, the estimated number in every category was multiplied by the average size of that category. The summation of those figures showed that the total area of

commercial farming units was 5.9 million hectares or 35.6 percent of the total area of agricultural units in Iran. With the application of the average number of landusers (farmers and their households), in a similar way, the total population of commercial farming units in Iran was estimated to be 1.3 million or 8.8 percent of total population of agricultural units. Conversely, the total number of subsistence farming units in Iran in 1353 (1974/5) was estimated to be 2.8 million or 92.6 percent of the agricultural units. The total area of those units was 10.5 million hectares or 64.4 percent of the total area of agricultural units in Iran. The population of subsistence farming units was estimated to be 13.4 million which accounted for 91.2 percent of the total population of agricultural units.

When the impacts of the land reform programme began to appear in the agricultural sector in Iran, although on the political front some major victories were claimed, the viability of the whole farming structure accruing from that programme was in serious doubt. Apart from some typical problems of the developing countries (e.g. lack of proper organization or shortage of skilled manpower) and also some other problems peculiar to Iran (e.g. topography of the country or shortage of water) two other problems caused immediate difficulties and had to be attended to quickly. These were the absence of capital and the absence of innovative entrepreneurs. The land reform programme ended the exploitation of the tenants by the landlords, but the removal of the landlords, who usually were, inter alia, the innovators and the providers of loans, combined with the disappearance of the Boneh system, due to the distribution of land

and water, created gaps that had to be filled. The Government, through its different organizations, has become increasingly more involved in the agricultural sector and assumed more active roles in its affairs to fill those gaps. Most of these problems still remain to be solved.

After prolonged discussions between the various ministries and organizations, two opposite courses of action were chosen to be implemented to solve the problems of size and land use. On the one hand the then Ministry of Land Reform (later the Ministry of Co-operation and Rural Affairs) decided to establish the Farm Corporations and the Rural Co-operatives; and on the other hand the Ministry of Water and Power and the Ministry of Agriculture started to form some state-owned and promote some private agro-industrial companies, in particular in the nationalized lands or the lands downsteam from dams.

4-6-1 Farm Corporations

In late 1346 (early 1968) the Law of Formation of Farm Corporations was approved by Parliament. According to this law Farm Corporations were being formed to: increase the agricultural per caput income of the farmers, acquaint them with the principles and methods of modern farming practices, prevent the fragmentation of farm lands into small uneconomical parcels, increase the agricultural land of the country by usage of uncultivated lands and reclamation of waste lands, develop and promote the non-agricultural activities especially the rural handicraft industries.

After the formation of a Farm Corporation every landowner

within its boundaries had to exchange his land for a number of Corporation shares, equal to the value of the land and other farm assets. The shareholders of a Corporation could only sell their shares to other shareholders or to the corporation itself, and they were denied the right to ask for the dissolution of the Corporation. In case of death of a shareholder his shares, not the land, were transferred to the legatees. The shareholders could work for the Corporation as labourers and receive wages for their work accordingly, but they had no individual rights to special parcels of land. All shareholders were eligible to receive the Corporation profit, in proportion to their shares.

Every Corporation manager, who was appointed and paid by the Ministry of Co-operation and Rural Affairs, was required by law to run the Corporation in consultation with a Board of Directors whose members were elected by the shareholders from among themselves. The Ministry also paid for expert consultants and some members of the Extension and Development Corps seconded to the Corporation. In addition it provided loans and direct and indirect grants for every Corporation.

By the end of 1355 (1976/7) there were 89 Farm Corporations in Iran with 33,663 shareholders, spread over some 813 rural settlements and cultivating 130 thousand hectares. The available figures show that the total amount of net profit of all the Farm Corporations was approximately half the total amount of direct grants they received (Table 55).

Table 55

FARM CORPORATIONS IN IRAN
1347-1355
(1968/9-1976/7)

Iranian year / Gregorian year	1347 1968/9	1348 1969/70	1349 1970/1	1350 1971/2	1351 1972/3	1352 1973/4	1353 1974/5	1354 1975/6	1355 1976/7
Number	15	20	19 (1)	27	43	65	65	85	89
Number of settlements	80	109	109	157	327	525	525	778	813
Area within the boundaries (ha)	60,789	82,519	82,519	109,077	191,777	285,162	285,162	386,559	401,448
Land area (ha)	58,139	77,653	77,653	99,450	169,863	231,759	231,759	309,991	318,734
Cultivation programme (ha)	-	-	-	-	-	87,012	87,012	138,210	130,337
Residents' population	43,171	54,996	54,996	76,921	134,313	196,366	196,366	290,799	299,670
Shareholders' population	24,429	33,241	33,241	47,489	81,375	123,882	123,882	177,937	185,435
Number of shareholders	4,298	6,169	6,169	8,689	15,250	22,778	22,778	32,506	33,663
Number of shares — Private (2)	161,143	228,141	228,141	342,221	640,922	306,950	306,950	1,381,046	1,419,883
Number of shares — State-owned	36,770	40,648	40,648	40,847	44,012	-	-	-	-
Registered capital (Rls. 10^6)	198	269	269	383	685	992	992	1,381	1,420
Direct grant (Rls. 10^6)	214	230	173	343	592	1,234	2,005	-	-
Loan received (Rls. 10^6) (3)	69	70	73	106	249	314	324	-	-
Gross income (Rls. 10^6)	-	-	-	496	797	1,767	2,918	3,345	-
Expenditure (Rls. 10^6)	-	-	-	312	522	1,065	1,874	2,359	-
Net profit (Rls. 10^6)	-	-	-	185	175	702	1,044	986	-
Reserves (Rls. 10^6) — Depreciation	-	-	-	110	167	274	466	709 (4)	-
Reserves (Rls. 10^6) — Others	-	-	-	108	185	556	1,088	1,491 (4)	-

(1) Two corporations were integrated.
(2) From 1352 (1973/4) onwards the figures include the government shares.
(3) The total repayment of loans until the end of 1350 (20 March, 1972) was Rls. 66 million.
(4) Until the end of Farvardin 1355 (20 April, 1976).

Source: Statistical Yearbook, 1356 (1977/8) - Statistical Centre of Iran.

4-6-2 Co-operatives

In 1342 (1963/4) the Central Rural Co-operation Organization was established to organize and administer a network of co-operatives throughout the rural areas of Iran. It would also help during their formation periods until they could manage their own affairs. However, most rural co-operatives were very small and their sole activity was to act as the indirect agents of the Agricultural Co-operative Bank of Iran in providing very small and short-term loans to their members. They were not able to undertake any other activity because of their insufficient capital. Also most farmers, who had become members under coercion by the Government, were unwilling to play active roles in the co-operatives' affairs. Therefore, an integration programme started in 1348 (1969/70) and finished in 1352 (1973/4) to reduce the number of co-operatives but enlarge the average size of them. Furthermore, in 1351 (1972/3) the formation of the Co-operative Unions and also the Production Co-operatives started. This last was in fact an institutionalized form of the Boneh system. None of these measures had any profound effect in solving any of the Iranian rural problems.

By the end of 1355 (1976/7) there were 2,886 Rural Co-operatives in Iran with some 2,868 thousand members and Rls. 6,962 million registered capital (Table 56). Some 2,870 of these Rural Co-operatives were members of 150 Co-operative Unions (Table 57). There were also 35 Production Co-operatives spread over 214 rural settlements with 50.5 thousand hectares of agricultural land and 9,700 landowners (Table 58).

Table 56

RURAL CO-OPERATIVES IN IRAN
1347-1355
(1968/9-1976/7)

Iranian year Gregorian year	1347 1968/9	1348 1969/70	1349 1970/1	1350 1971/2	1351 1972/3	1352 1973/4	1353 1974/5	1354 1975/6	1355 1976/7
		(1)				(2)			
Co-operatives	8,388	8,102	8,298	8,450	8,361	2,717	2,847	2,858	2,886
Members (10^3)	1,260	1,400	1,606	1,854	2,065	2,263	2,488	2,685	2,868
Registered capital (Rls. 10^6)	1,639	1,984	2,379	2,769	3,329	3,857	4,677	5,690	6,960
Legal reserves (Rls. 10^6)	279	421	601	795	1,037	1,318	1,525	1,808	2,075

(1) Beginning of the integration programme.
(2) End of the integration programme.

Source: Statistical Yearbook, 1356 (1977/8) - Statistical Centre of Iran.

Table 57

RURUAL CO-OPERATIVE UNIONS IN IRAN
1351-1355
(1972/3-1976/7)

Iranian year Gregorian year	1351 1972/3	1352 1973/4	1353 1974/5	1354 1975/6	1355 1976/7
Unions	127	131	139	144	150
Related co-operatives	7,961	2,704	2,790	2,840	2,870
Co-operative members (10^3)	1,889	2,124	2,395	2,606	2,793
Unions' registered capital (Rls. 10^6)	1,580	2,031	2,416	2,883	3,221
Unions' legal reserves (Rls. 10^6)	112	188	279	516	632

Source: Statistical Yearbook, 1356 (1977/8) - Statistical Centre of Iran.

Table 58

PRODUCTION CO-OPERATIVES IN IRAN
1351-1355
(1972/3-1976/7)

Iranian year Gregorian year	1351 1972/3	1352 1973/4	1353 1974/5	1354 1975/6	1355 1976/7
Number	6	9	24	34	35
Number of settlements	34	44	126	181	214
Area within the boundaries (ha)	8,496	97,473	45,992	82,257	87,456
Land area (ha)	6,628	11,166	28,235	46,572	50,572
Number of landlords	1,299	1,962	6,156	9,379	9,700
Landowners' population	5,683	12,567	35,889	55,632	57,431
Residents' population	8,753	20,856	53,410	87,894	91,247
Number of shareholders	1,628	3,329	7,204	-	-
Number of shares (10^3)	53	91	235	-	-
Registered capital (Rls. 10^6)	2,647	4,528	11,758	5,690	-

Source: Statistical Yearbook, 1356 (1977/8) - Statistical Centre of Iran.

4-6-3 Agro-industries

Three types of agro-industries developed in Iran: i) private agro-industries initiated by their owners, ii) state-owned companies, and iii) government-prompted private companies. The agro-industries in the first group were mostly working on their own private lands, whereas, those in the second and the third groups were mostly working on Public Domain lands.

Many units in the first group of agro-industries, which were not always in company form, belonged to former landlords, part or all of whose lands had not been subjected to the land reform programme. They had sufficient finance at their disposal to implement an investment programme. Other units were acquired by industrial plant-owners who had invested in agriculture, to secure a minimum inflow of the agricultural raw materials for their industries. Almost all of these units were very successful due to some common characteristics:

- Having Iranian owners with good connexions at all levels and with first hand, and sometimes advance, information of initiation or changes in the various government policies and programmes.
- Having highly efficient managements which were quick to take advantage of the circumstances of the time.
- Making full and sometimes extra use of all the government services.
- Either not producing the officially-price-controlled commodities or not selling them as raw materials.

- Using the agricultural part, which was tax exempt, to gain some tax advantage in the industrial part of the business.
- (Only in some cases) enjoying some monopoly power.

The second group of agro-industries, the state-owned companies, was composed of two types of project. First there were projects like the Haft-Tapeh Sugar-Cane Development in Khuzestan which were initiated with the aim of providing an example to the private sector to follow with the ultimate aim of selling them to private enterprise. This aim was never realised. Secondly projects that the Government established to maximize the utilization of the resources of a region like the Moghan project in the Moghan plain in East Azarbayejan. None of these state-owned agro-industries were being run on a commercial basis.

The third group of agro-industries composed of seven companies which were promoted by the Government in execution of the Law of Establishment of Companies Engaged in Developing Lands Downstream of a Dam. The company downstream from the Karoon Dam, the Karoon Sugar-Cane Company, was a private company only from a technical point of view. Almost half the total required investment to implement the project was provided by the Government as the infrastructural cost. The second half of the investment was divided into loan and equity capital. Almost all the necessary loan was either directly provided or guaranteed by the state-owned Agricultural Development Bank of Iran. In addition, 40 percent of the equity capital of the company was contributed by the above-mentioned bank and only 60 percent of the

equity capital was contributed by the Industrial and Mining Development Bank of Iran (a private bank), and its affiliated companies. Therefore, according to the Iranian law[1] the Karoon Sugar-Cane Company was considered to be a private company. The company after the completion of its project, was to have 25 thousand hectares under cultivation of sugar-cane, a sugar factory with the capacity of 250 thousand tons sugar per annum, a paper factory and a feed plant.

Initially, four companies were established to develop and use 64 thousand hectares of land downstream from the Dez Dam. The shares of foreign investors in the initial capital of these companies ranged from 60 to 100 percent and because management of such large agricultural units was unprecedented in Iran, they began their work by hiring foreign management companies to manage their affairs. None of these companies were successful and by the end of 1355 (1976/7) the accumulated loss of every one of them was more than half its registered capital. According to the Iranian law this allowed any interested party to ask the Iranian courts to dissolve any of those companies. The management of three companies, after five years of independent operation, had to be transferred to the Agricultural Development Bank of Iran, their main creditor. By that time out of the total allocated land some 44 thousand hectares had been turned over to the companies, out of which they had only managed to develop 21 thousand hectares, slightly over 5 thousand hectares each. Among the reasons for failure of these companies were:-

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(1) According to the Iranian law a company is considered to be a private company when more than half its equity capital is contributed by private sector.

- Insufficient research on the essential agricultural elements in the area (e.g. suitable crops, seeds and pesticides and even the timing of sowing and harvest of different crops) and the social impacts of the establishment of these companies on the local residents.
- Heavy land development costs which were much higher than the forecast expenditure. In two of the companies the high cost of some residential and leisure buildings added to the financial burdens.
- Bad and expensive management that failed in implementing the planned projects because of unfamiliarity with the climatic and social circumstances of the region; transfer of foreign managerial methods without adjusting them to the regional needs; inability to establish proper contacts with the workers; using unqualified managers and experts; immediate transfer of the unconfirmed results of some crop production trials from small experimental plots to large scale farming and insistence on repeating the cultivation of unsuccessful crops.
- Inadequate incentives for the workers. The management companies also had contract fees which were unrelated to their performance.
- Inadequate financial and managerial facilities for the scale of the allocated lands.
- Steep rises in the prices of inputs which were not matched by rises in the prices of agricultural commodities.

These companies were also faced with the general problems of Iranian agriculture, such as the shortage of qualified personnel and the shortage and difficulties of obtaining spare parts for their machinery and equipment.(1) In later years they met transportation problems and found labour overexpensive and scarce. The one area where these companies were successful was in releasing some of the received but undeveloped land to the Iranian farmers for a rent of between Rls. 7-9 thousand per agricultural season.(2)(3)

When it became clear that the initial four companies at Dez were not able to carry out their planned projects, the Government decided to take back their undeveloped lands and reallocate them in smaller plots to new companies. A company started its work on 4 thousand hectares in late 1355 (1976/7) and another company started its planning stage in 1356 (1977/8) to work on 2.5 thousand hectares of land.

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(1) Although these companies were exempt from paying the custom duties.

(2) Compared to Rls. 1.5 thousand that they themselves had to pay, annually.

(3) 3-5 months.

CHAPTER 5: WATER

In almost every area of Iran, which is one of the relatively arid countries of the world, the first and foremost limiting factor for any kind of agricultural activities is water. The large proportion of fallow lands in the total "irrigated" lands (32.7 percent) indicates the extent of the shortage of water in Iran. With regard to this shortage, the Government according to the article 10 of the White Revolution, which was approved by Parliament in Mordad 1347 (August 1968), nationalized all the waters in the country. After nationalization it was necessary to obtain a permit from the Ministry of Energy (formerly the Ministry of Water and Power) before the development of a new source of water (e.g. digging a well) or the improvement of an old one (e.g. dredging a Ghanat)[1]. A permit is issued with respect to the safe level of water-extraction from the river or the subterranean water reservoir. Such a permit gives some information about the permit holder, location and type of source of water, purpose of use of water and the amount of water which is allowed to be taken from the source. To dig and use a well first a temporary permit is sought, this indicates a limited period to start the drilling, and then after water has been found and tested a permanent permit is issued. Acquiring a permit is usually very time consuming and in many areas of Iran in spite of availability of land of high agricultural potential due to uncertainty about the amount of

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(1) See section 5-5-2.

available water, it is impossible to obtain a permit. In 1349 (1970/1) the Ministry of Energy started to study all the subterranean water resources of the country. This study has not been completed yet.

5-1 Total Available Water

There have been several estimates about the "average annual rainfall"[1] or the "average total annual rainfall"[2] in Iran, ranging from 19.4 to 30 centimetres or 23-35 percent of the average annual rainfall of the world (86 centimetres).[3] The National Cropping Plan[4] has quoted the figures of 320 thousand million cubic metres (19.4 centimetres) from the Ministry of Energy, and 368 thousand million cubic metres (22.3 centimetres) from the Plan and Budget Organization; the figure quoted from the Ministry of Energy in a study by the Central Bank of Iran[5] has been 335 thousand million cubic metres (20.3 centimetres) with fluctuations between 280 and 520 thousand

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(1) Measured in centimetres of depth.

(2) Measured in cubic metres. Every cubic metre is equal to one millimetre of rainfall per hectare.

(3) Statistical Yearbook, 1355 (1976/7) - Statistical Centre of Iran.

(4) A report to the Ministry of Agriculture and Natural Resources (of Iran), by Bookers Agricultural and Technical Services Limited & Hunting Technical Services Limited, Shahrivar 1354 (August 1975).

(5) Supply and Consumption of Water in Iran, a study by the Economic Research Department of the Central Bank of Iran; The Bulletin of the Central Bank of Iran, Number 177, first quarter of 1357 (second quarter of 1978). Only the Farsi version of the bulletins contain the articles.

million cubic metres (17-31.6 centimetres); in a publication by the Ministry of Energy[1] the amount of 400 thousand million cubic metres (24.3 centimetres) has been mentioned; and the range of between 410 and 494 thousand million cubic metres (25-30 centimetres) has been suggested by the Statistical Centre of Iran[2] for the average total annual rainfall in the country.

Although the proposed figures for the average total annual precipitation in Iran by the above-mentioned sources vary substantially, their estimated figures for the total annual amount of controllable water are relatively closer at between 101.5 and 130 thousand million cubic metres including 3.5-6.7 thousand million cubic metres of water which flows into Iran from neighbouring countries.

The distribution of precipitation in Iran, both in time and space, is very uneven. Out of the total precipitation of the country 52 percent falls on the north and the west regions, which account for 25 percent of the total area of the country; 28 percent falls on the central plateau which accounts for 50 percent of the total area of Iran; and the remaining 20 percent falls on the south and the east regions which account for 25 percent of the total area of the country.[3]

The main precipitation in Iran, except in a small area of the Caspian littoral, usually occurs before the growing season.

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(1) The Annual Bulletin of Irrigation and Drainage, 1350 (1971/2) - Ministry of Water and Power (of Iran).

(2) Statistical Yearbook, 1355 (1976/7) - Statistical Centre of Iran.

(3) Fifth National Development Plan, 1352-1356 (1973/4-1977/8) - Plan and Budget Organization (of Iran), Khordad 1352 (June 1973).

At the time of maximum need of water for agriculture, the precipitation and the flow of water in the rivers are at their minimum.(1)

5-2 Surface Water

According to the various sources mentioned earlier, the total annual amount of controllable surface water in Iran is 77.5-90 thousand million cubic metres, out of which 39.5-42.6 thousand million cubic metres was under control and used in agriculture by the end of 1354 (1975/6). The rest of the surface water in that year, flowed to the seas or the internal lakes and swamps.

By 1355 (1976/7) there were 12 reservoir dams completed and in use in Iran, while 6 more were under construction and a further 4 were under study. After the completion of all these dams the total regulatable water of them would be 26,498 million cubic metres per annum. They would add some 940 thousand hectares to the under-cultivation area of the country and improve the agricultural conditions of another 487 thousand hectares (Table 59). In 1355 (1976/7) there were 27 diversionary dams in use in Iran and a further 3 were under construction (Table 60).

5-3 Subterranean Water

According to the various sources discussed earlier, it is estimated that out of the total amount of controllable water 33-40 thousand million cubic metres permeates through the soil and joins

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(1) Supply and Consumption of Water in Iran, a study by the Economic Research Department of the Central Bank of Iran; the Farsi version of the Bulletin of the Central Bank of Iran, Number 177, first quarter of 1357 (second quarter of 1978).

ERECTED, UNDER-CONSTRUCTION AND UNDER-STUDY RESERVOIR DAMS IN IRAN
1355
(1976/7)

Name	River	Location	Crest length (m)	Maximum height (m)	Volume of materials used ($10^6 m^3$)	Maximum discharge capacity (m^3/s)	Reservoir storage capacity ($10^6 m^3$)		Annual regulatable water ($10^6 m^3$)	Under-cultivation area (10^3 ha)		Electricity		Year of start	Year of completion
							Total	Useful		Increased	Improved	Installed capacity (MW)	Annual production (10^6 kwh)		
Dez	Dez	North of Dezful	212	203	459	6,000	3,340	2,480	6,938	37.8	58.5	520.0	2,200	1336	1341
Sefid Rood	Sefid rood	Manjil	425	106	840	6,000	1,800	1,200	2,000	110.0	130.0 (1)	87.5	420	1336	1340
Karaj	Karaj	North of Karaj	390	180	750	1,450	205	195	400	0.0	21.0 (2)	90.0	130	1337	1340
Abshineh	Abshineh	Yalfan - Hamedan	286	53	160	500	8	5	17	0.2	0.0 (2)	0.0	0	1338	1342 (3)
Golpayegan	Golpayegan	Akht-khan	360	56	850	2,000	44	40	80	2.3	3.2 (1)	0.0	0	1324	1349
Latian	Jaj rood	Latian	4,500	107	770	1,750	95	85	245	0.0	30.0	22.0	50	1344	1346
Zayendeh rood	Zayendeh rood	Isi-seo village	450	100	535	1,880	1,250	1,090	1,200	30.0	65.0	55.0	174	1344	1349
Mehabad	Mehabad	Mehabad	700	46	1,660	1,550	230	190	195	21.0	10.0	5.8	24	1346	1349
Zarineh rood	Zarineh rood	South-east of Bookan	720	50	1,890	4,300	650	486	535 (5)	85.0	20.0	- (4)	- (4)	1346	1350
Arass	Arass	Ghezel-Gheshlagh	945	38	3,490	2,760	1,350	1,150	1,400 (5)	72.0	18.0	22.0 (5)	88 (5)	1346	1349
Gorgan rood	Gorgan rood	Sangar savar - Gorgan	430	19	1,350	1,400	79	50	100	10.0	10.0 (6)	0.0	0	1343	1349
Kor	Kor	Dorood zan	700	60	5,700	3,100	993	860	433	20.0	21.0	0.0	0	1345	1351
Karoon	Karoon	North-east of Masjed-solyman	380	200	1,570	16,200	2,900	1,100	9,259	410.8	6.2	1,000.0	4,120	1348 (9)	1355
Jiroft	Halil rood	Tang Narab	250	133	300	6,900	430	355	235	8.0	2.5 (7)	30.0	80	1353 (9)	1358
Minab	Minab	Minab	450	60	400	12,000	350	271	240	7.0	7.0 (1)	0.0	0	1353 (9)	1357
Lar	Lar	North of Poloor	1,500	105	13,000	1,700	960	860	300	35.0	30.0 (8)	100.0	200	1352 (9)	1358
Gheshlagh	Gheshlagh	Sanandaj	300	80	2,000	2,600	224	199	105	7.0	0.0	4.0	13	1352	1356
Pishin	Bahoo	Pishin	470	56	1,640	20,000	190	170	80	6.5	0.0	0.0	0	1353	1359
Maroon	Maroon	Tang Takab	220	165	7,100	10,700	1,286	1,100	888	5.9	49.6	0.0	0	1355	1360
Saveh	Vaforghan	South-west of Saveh	262	88	300	275	290	270	328 (5)	10.0	5.0	9.5 (5)	32 (5)	1355	1360
Khoda Afarin	Arass	Za Afarin	380	60	3,600	3,500	1,620	1,200	1,500 (5)	60.0	0.0	100.0 (5)	250 (5)	1355	1362
Bahoo	Bahoo	Bahoo Kalat	320	18	1,000	18,000	110	100	20	1.5	0.0	0.0	0	1356	1360

(1) Plus supply of water to Tehran.
(2) Plus supply of water to Hamedan.
(3) The dam was completed in 1346 (1967/8) but its height was increased in 1349 (1970/1).
(4) Under study.
(5) Iran's share.
(6) Plus supply of water to Shiraz.
(7) Plus supply of water to Bandar Abbas.
(8) Plus supply of water to Sanandaj.
(9) Building of access roads started in 1350 (1971/2).

Source: Statistical Yearbook, 1356 (1977/8) - Statistical Centre of Iran.

Table 60

ERECTED AND UNDER-CONSTRUCTION DIVERSIONARY DAMS IN IRAN
1355
(1976/7)

Name	River	Location	Crest length (m)	Maximum height (m)	Diverted flow of water (m^3/s)	Year of start	Year of completion
Abshar	Zayandeh rood	Esfahan	64.0	6.9	30.0	1349	1350
Alvand	Alvand	Ghasr-e-shirin	32.0	1.8	4.0	1335	1337
Bampour	Bampour	Bampour	60.0	6.5	2.5	1334	1335
Pesikhan	Pesikhan	Between Rasht and Fouman	498.0	5.0	4.0	1346	1348
Tarik	Sefid rood	Near Payab	250.0	20.0	35.0	1344	1348
Cheghalvandi	Kalsian	Cheghalvandi - Lorestan	40.0	5.0	3.2	1328	1330
Kheir-Abad	Shavoor	North of Ahvaz	26.0	9.0	8.0	1318	1319
Ziaran	Ziaran	Ziaran - Abyek	184.0	25.5	30.0	1349	1352
Zehak	Sistan	Zehak	52.2	8.3	45.0	1329	1333
Sangar	Sefid rood	Sangar	231.0	18.0	181.0	1341	1344
Sha-khazar	Sha-khazar	Between Rasht and Fouman	190.0	4.0	2.0	1346	1348
Shabankareh	Shapoor	Shabankareh	55.5	3.5	5.0	1318	1320
Shavoor	Shavoor	North of Ahvaz	21.0	6.5	6.0	1324	1325
Seighalan Roodbar	Seighalan Roodbar	Rasht	36.0	7.0	1.0	1326	1328
Sangban	Shahrood	Taleghan	183.0	10.1	30.0	1349	1353
Karkheh	Karkheh	North of Hamidyeh	192.0	4.7	60.0	1329	1335
Kochary	Golpayegan	Golpayegan	172.0	3.5	3.5	1342	1344
Kafeh Rang	Sheikh Alikhan	Jahlgard	70.0	10.0	20.0	1327	1332
Kohak	Sistan	Kohak	68.2	6.3	23.0	1344	1345
Ganjancham	Ganjancham	Reza Abad	205.0	2.4	5.0	1344	1345
Mill-va-Moghan	Arass	Aslandooz	135.0	8.5	80.0	1344	1349
Nekoo Abad	Zayandeh rood	South of Esfahan	64.0	6.5	65.0	1349	1351
Barimond	Alvand	Near Pol-e-zahab	30.0	3.0	4.5	1350	1351
Shapoor Aval	Mehabad	Yosef-Kandi	443.0	4.5	17.0	1346	1349
Norouz Lou	Zarineh rood	South-east of Mian-do-ab	510.0	6.0	60.0	1347	1349
Heshmat rood	Disam	Near Astaneh Ashrafyeh	30.0	5.0	25.0	1327	1332
Abiari Dez	Dez	South of Dezful	394.0	4.0	250.0	1347	1349
Gotvand	Karoon	Gotvand	710.0	22.0	101.0	1354	1356
Varamin	Jajrood	Kabood Gonbad	610.0	4.0	32.0	1354	1356
Garmsar	Hableh rood	Sarabror	120.0	3.0	12.0	1354	1356

Source: Statistical Yearbook, 1356 (1977/8) - Statistical Centre of Iran.

the subterranean reservoirs. The estimated total amount of underground water used in agriculture in Iran in 1354 (1975/6) was 17-17.7 thousand million cubic metres.

The total amount of discharged water from the subterranean reservoirs of the "studied areas" of the Ministry of Energy in 1355 (1976/7) was 24.7 thousand million cubic metres, out of which wells (deep and semi-deep), Ghanats and springs provided 47.7, 30.5 and 21.8 percent respectively (Table 61).

5-4 Water Use

Although the urban water requirements are mainly being supplied from surface water and the main purpose of construction of some dams was provision of water to various cities, some underground water is also being supplied to villages and towns for their non-agricultural use. Urban water consumption in 1356 (1977/8) was estimated to be less than one thousand million cubic metres[1] and although some regional and short-term problems in supply of water to some urban areas (mainly Tehran) may cause some difficulties in future expension of those areas, on the whole it was not considered a major concern for the country.[2]

Water (agricultural or non-agricultural), according to the agricultural census of 1352 (1973/4), was provided for the rural

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(1) Fifth National Development Plan, 1352-1356 (1973/4-1977/8) - Plan and Budget Organization (of Iran), Khordad 1352 (June 1973).

(2) National Cropping Plan; a report to the Ministry of Agriculture and Natural Resources (of Iran), by Bookers Agricultural and Technical Services Limited & Hunting Technical Services Limited, Shahrivar 1354 (August 1975).

Table 61

SUBTERRANEAN WATER IN STUDIED AREAS OF IRAN
1355
(1976/7)

Basins	Springs		Ghanats		Deep wells		Semi-deep wells		Total Discharge of water ($10^6 m^3$/year)
	Number	Discharge of water ($10^6 m^3$/year)	Number	Discharge of water ($10^6 m^3$/year)	Number	Discharge of water ($10^6 m^3$/year)	Number	Discharge of water ($10^6 m^3$/year)	
Outward	5,431	4,267	5,615	2,051	6,973	2,732	25,406	1,757	10,807
Inward	2,638	1,113	12,665	5,503	9,967	4,835	1,801	2,479	13,920
Total	8,069	5,380	18,280	7,554	16,940	7,567	27,207	4,236	24,737

Source: Statistical Yearbook, 1356 (1977/8) - Statistical Centre of Iran.

settlements of Iran from 9,351 deep wells, 31,810 semi-deep wells, 1,295 artesian wells, 83,348 shallow wells, 46,303 Ghanats, 112,812 springs and 50,176 brooks. In that year there were some other water sources in the rural areas of Iran which were dried, ruined or not in use (Table 62). The number of deep wells in the whole country in 1352 (1973/4) as reported by that census was markedly less than the number of deep wells in the "studied areas" in 1355 (1976/7) as reported by the Ministry of Energy.

5-5 Efficiency of Use of Water

5-5-1 Dams

Although in putting a multi-purpose dam to its full use the construction of its accompanying irrigation network is as significant as the erection of the dam itself, the concurrent construction of dams and their irrigation networks have always been ignored in Iran. As a result, the agricultural efficiency of most dams have been very low for some years after their construction. For example, the construction of the Dez Dam, which was one of the largest dams in Iran, began in 1336 (1957/8) and ended in 1341 (1962/3); but to prepare its irrigation network first a pilot project was started in 1341 (1962/3) which was completed in 1345 (1966/7) and three years later in 1348 (1969/70) the main project was started, and by the end of 1355 (1976/7), only 70 percent of it was implemented.

Insufficient watershed protection activities in earlier years, to a certain extent, damaged some dams but the potential dangers of such neglect were realized and from the beginning of the fourth national development plan the appropriate measures were

Table 62

RURAL SETTLEMENTS WITH WATER IN IRAN, BY SOURCE OF WATER
1352
(1973/4)

State of Use	Deep wells		Semi-deep wells		Artesian wells		Shallow wells(1)		Ghanats		Springs		Brooks	
	Number of settlements	Number of wells	Number of settlements	Number of wells	Number of settlements	Number of wells	Number of settlements	Number of wells	Number of settlements	Number of ghanats	Number of settlements	Number of springs	Number of settlements	Number of brooks
Utilized	4,193	9,351	7,050	31,810	519	1,295	7,224	83,348	27,955	46,303	30,981	112,812	24,281	50,176
Unutilized	833	1,237	2,085	4,375	133	312	1,706	11,101	11,102	15,862	3,253	10,136	1,665	2,743
Total	4,560	10,588	7,927	36,185	579	1,607	7,899	94,449	34,153	62,165	31,913	122,948	24,932	52,919

(1) In the census report this category has been classified as "hand-dug wells" to imply the shallowness of the wells, but because some of semi-deep wells are also hand-dug the name of this category was changed to "shallow wells".

Source: Agricultural Census of 1352 (1973/4) - Statistical Centre of Iran.

gradually introduced.

5-5-2 Ghanats and Springs (1)

In spite of the discouraging policies of the Government, which has strongly opposed the construction of any new Ghanats and to a lesser degree the use of the existing ones, farmers have tried to preserve Ghanats because of their minimal running costs. Moreover, although the absolute cost of dredging, maintaining and expanding Ghanats is high, because most of the cost is actually labour expenditure, the users of Ghanats can undertake the work themselves without having to pay for it in cash.

The Government's justification in opposing Ghanats has been the low efficiency of use of Ghanat waters. This low efficiency is due to two main reasons which are also applicable to springs:

I. Except in occasional cases their water is untappable.

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(1) Ghanat is a traditional and very old system of using the underground water composed of:

- A hand-dug semi-deep well called the Mother Well which is dug on a high ground.
- A subterranean conduit which starts at the bottom of the Mother Well and runs along an imaginary line which makes an angle of slightly over 90^{o} with the vertical axis of the Mother Well towards the land or area which it is supposed to irrigate.
- Some small maintenance wells between the Mother Well and the opening of a Ghanat to make the access to the conduit easier.

The height of the conduit is usually enough for a man to walk through it and the length of the conduit depends on the distance between the subterranean reservoir and the intended opening of the Ghanat. Examples of up to 70 kilometres have been seen.

Therefore, when it is not needed the water, which is constantly discharged, is wasted. This problem is enhanced in those areas where irrigation at night is not common.

II. The long underground conduits and open canals through which water is discharged have mostly uninsulated floors and allow heavy losses of water.

In 1352 (1973/4) the efficiency of use of spring and Ghanat waters in agriculture was reported by the Ministry of Water and Power to be 55 percent, and by the Plan and Budget Organization to be 28 percent.(1)

5-5-3 Brooks

Brooks are mostly diversion from rivers by erection of barrages which are often made of wadding materials and wood. Thus, they are liable to be washed away in springs by flood waters. Although the drop of water during conveyence in brook-beds is mentioned to be substantial by all sources, no figure about the efficiency of brooks is available.

5-5-4 Wells

Wells are the most efficient water sources in Iran because their water is only used when it is needed and also they are mostly

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(1) National Cropping Plan; a report to the Ministry of Agriculture and Natural Resources (of Iran), by Bookers Agricultural and Technical Services Limited & Hunting Technical Services Limited, Shahrivar 1354 (August 1975).

close to the actual places of use. The running costs of wells are usually high because their water has to be pumped out.(1)

5-5-5 Irrigation Efficiency

The efficiency of irrigation on the farms in Iran is very low often because wrong methods are being used (mainly flooding). Another source of inefficiency is that many farmers (except those who are using exclusive sources of water) have to irrigate their crops at a set time (when it is their turn) irrespective of the needs of their crops.(2) The on-the-farm-irrigation-efficiency in Iran is reported to be 35-45 percent.(3)

The total annual amount of controlled water in Iran was estimated to be 58 thousand million cubic metres, out of which surface and underground waters provided 41 and 17 thousand million cubic metres, respectively. Only 17 thousand million cubic metres of the total annual amount of controlled water was actually being used in agriculture and the rest of it was being wasted which meant the efficiency of use of water in agriculture in Iran was about 29 percent.(4)

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(1) Except the artesian wells.

(2) Supply and Consumption of Water in Iran, a study by the Economic Research Department of the Central Bank of Iran; the Farsi version of the Bulletin of the Central Bank of Iran, Number 177, first quarter of 1357 (second quarter of 1978).

(3) Apart from the sources mentioned earlier, see also: NEYESTANI, M., A Project for Increase of Irrigation Efficiency - Agricultural Development Bank of Iran, Farvardin 1351 (May 1972).

(4) National Cropping Plan; a report to the Ministry of Agriculture and Natural Resources (of Iran), by Bookers Agricultural and Technical Services Limited & Hunting Technical Services Limited, Shahrivar 1354 (August 1975).

If the figures for the total annual amount of controllable water in Iran is computed, the efficiency of use of water in Iran is seen to be between 13 and 17 percent.

5-6 Irrigatable Lands

The minimum annual requirement of water for good irrigation in Iran is 10.5 thousand cubic metres per hectare. Although lands with a minimum of 7-7.5 thousand cubic metres of water per hectare are generally considered to be irrigated lands, the insufficient amount of water in them affects production.(1) By application of that standard and if all the necessary measures to control and use water efficiently were taken, the ultimate possible area of irrigatable land in Iran would be 9.7-12.5 million hectares. According to the calculations of the Plan and Budget Organization,(2) if 10 million hectares of irrigated lands were under cultivation, Iran would be self-sufficient in production of agricultural commodities for a population of 50 million.(3)

Heavy and ever-increasing investments are needed to implement all the necessary programmes to control all the potential water supplies, because gradually the marginal utility of investment in terms of controllable water will be diminished.

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(1) Possibilities of Increase of Irrigated Under-Cultivation Lands in Iran; a report to the Ministry of Agriculture and Natural Resources (of Iran), by Yekom Consultant Engineers, Aban 1353 (October 1974).

(2) Long-Term Study of Water - Plan and Budget Organization (of Iran), 1352 (1973/4).

(3) Obviously, much depends on the assumptions about the per caput food consumption, yields of production, etc.

The cost of efficient systems of use of water is also substantial. In 1356 (1977/8) the unit cost of installation of efficient systems of irrigation, pro rata to the degree of efficiency, was Rls. 50-150 thousand[1] per hectare.[2] A prerequisite to carry out such an investment is - inter alia - the hope for high incentives which generally did not exist in Iranian agriculture at that time.

In a report to the Ministry of Agriculture and Natural Resources in Aban 1353 (October 1974),[3] the possibilities of increasing the irrigated under-cultivation lands by about 2 million hectares in selected project-areas by 1371 (1992/3) compared to that of 1346 (1967/8) were studied. The study seems to have been shelved.

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(1) With the exchange rate of the time (£1 = Rls. 125) it was £400-1,200.

(2) These are the figures used in project appraisals by the Agricultural Development Bank of Iran.

(3) By Yekom Consultant Engineers.

CHAPTER 6: POPULATION AND LABOUR FORCE

According to the available information, the first complete population census in modern times in Iran was to be carried out in 1255 (1876/7) by the order of the Prime Minister of the time, but the sudden death of the reigning monarch stopped it. After some sporadic and incomplete attempts to enumerate the population of Iran, in Khordad 1318 (June 1939) the Census Law passed through Parliament. The enumeration started in Tir of that year (July 1939) and continued until 3rd Shahrivar, 1320 (25th August, 1941). However, it remained incomplete because on that date Iran was occupied and forced to enter World War II.(1) The first complete population census in Iran was carried out in Aban 1335 (October 1956) and since then two more censuses, on a decennial basis, have been implemented in Aban 1345 (October 1966) and Aban 1355 (October 1976). The first census had many shortcomings and discrepencies and although the total figures(2) of that census are usually used as reference figures, the cohort figures and other stratified results are often ignored. The second census was implemented with the use of experience gained from the execution of the first census and its results were more coherent. Nevertheless, there were some inconsistencies some of which will be discussed later in this section. The third census, which was carried out in 1355 (1976/7), was extended to cover housing

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(1) Background and Future of Urban and Rural Population of Iran - Statistical Centre of Iran, 1352 (1973/4).

(2) e.g. Total males, etc.

as well as population. The complete results of that census have not been published yet, but the results of a survey which was carried out on the basis of a 5 percent sample from among the filled census-questionnaires are available.(1)

The vital statistics registration in Iran, although improved in recent years, is far from satisfactory. Birth registration, which is closer to reality than other vital statistics records, is not accurate in respect of the number of still-births and also a proportion of live-births especially in the rural areas. However, it is believed that the number of those people who register in later times of their lives would, to a large extent, compensate for those live-births that are not being reported immediately at the time of birth. The deficiencies of the other vital statistics records are substantial. For example the difference between the registered births and deaths in the 10-year period between 1345 (1966/7) and 1355 (1976/7) is 2.4 million more than the increase of the population of Iran in that period as reported by the second and the third censuses (Tables 63 and 64).

6-1 Total Population

According to various publications of the Statistical Centre of Iran, the total population of the country increased from 7.7 million in 1260 (1881/2) to 33.7 million in 1355 (1976/7) with an average rate of increase of 1.57 percent per annum (Table 65). The

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(1) The total population of Iran is considered to be equal to the total number of filled questionnaires.

Table 63

(1)
REGISTERED BIRTHS IN IRAN
1343-1355
(1964/5-1976/7)

('000)

Iranian year	Gregorian year	Rural			Urban			Whole country		
		Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes
1343	1964/5	422	371	793	168	154	322	590	525	1,115
1344	1965/6	325	406	732	220	188	408	546	594	1,140
1345	1966/7	386	356	741	187	173	360	573	529	1,102
1346	1967/8	343	317	661	187	172	359	530	490	1,019
1347	1968/9	331	325	656	197	188	386	529	508	1,037
1348	1969/70	364	350	714	186	191	377	550	541	1,092
1349	1970/1	394	376	770	216	203	419	610	579	1,189
1350	1971/2	405	376	782	230	219	450	636	595	1,231
1351	1972/3	368	346	714	216	206	422	584	552	1,136
1352	1973/4	399	364	763	230	219	449	629	583	1,212
1353	1974/5	411	374	785	241	223	464	652	597	1,249
1354	1975/6	431	390	821	268	254	522	699	644	1,343
1355	1976/7	439	406	845	286	271	557	725	677	1,402

(1) Not always immediately after the time of birth.

Any difference between the total figures and the sum of the individual items is due to rounding of the figures.

Sources: Vital Registration Organization (of Iran) Bulletins, 1354-1355 (1975/6-1976/7).

Table 64

REGISTERED DEATHS IN IRAN
1343-1355
(1964/5-1976/7)

('000)

Iranian year	Gregorian year	Rural			Urban			Whole country		
		Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes
1343	1964/5	52	25	77	60	27	87	92	52	144
1344	1965/6	76	26	102	45	27	72	120	53	173
1345	1966/7	81	32	113	42	25	68	124	57	181
1346	1967/8	78	33	111	43	26	69	120	59	179
1347	1968/9	70	34	105	43	27	70	113	61	174
1348	1969/70	67	29	96	45	27	72	111	56	168
1349	1970/1	64	28	92	44	28	71	108	56	163
1350	1971/2	61	24	85	43	21	65	104	45	149
1351	1972/3	63	24	87	44	23	67	107	47	154
1352	1973/4	62	24	86	48	25	73	110	49	159
1353	1974/5	58	21	79	46	25	71	104	46	150
1354	1975/6	56	20	76	48	25	73	104	45	149
1355	1976/7	58	20	78	51	26	77	109	46	155

Any difference between the total figures and the sum of the individual items is due to rounding of the figures.

Sources: Vital Registration Organization (of Iran) Bulletins 1354-1355 (1975/6-1976/7).

Table 65

POPULATION OF IRAN
1260-1355
(1881/2-1976/7)

Iranian Year	Gregorian Year	Population ('000)			Distribution (%)			Annual rate of increase (%)		
		Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
1260	1881/2	-	-	7,654	-	-	100.0	-	-	0.60
1270	1891/2	-	-	8,124	-	-	100.0	-	-	0.59
1280	1901/2	-	-	8,613	-	-	100.0	-	-	0.60
1290	1911/2	-	-	9,143	-	-	100.0	-	-	0.60
1300	1921/2	-	-	9,707	-	-	100.0	-	-	1.50
1305	1926/7	7,412	3,044	10,456	70.9	29.1	100.0	1.24	1.63	1.36
1310	1931/2	7,885	3,300	11,185	70.5	29.5	100.0	1.24	1.62	1.36
1315	1936/7	8,388	3,576	11,964	70.1	29.9	100.0	1.30	1.68	1.41
1320	1941/2	8,947	3,886	12,833	69.7	30.3	100.0	1.87	2.25	1.99
1325	1946/7	9,816	4,343	14,159	69.3	30.7	100.0	2.66	3.03	2.78
1330	1951/2(1)	11,194	5,043	16,237	68.9	31.1	100.0	3.04	3.38	3.14
1335	1956/7(1)	13,001	5,954	18,955	68.6	31.4	100.0	2.48	5.21	3.37
1340	1961/2(1)	14,695	7,677	22,372	65.7	34.3	100.0	1.71	4.99	2.88
1345	1966/7(1)	15,994	9,795	25,789	62.0	38.0	100.0	1.96	4.83	3.08
1350	1971/2(1)	17,622	12,398	30,020	58.7	41.3	100.0	0.23	4.97	2.32
1355	1976/7(1)	17,865	15,797	33,662	53.1	46.9	100.0			
1340	1961/2(2)	14,695	7,677	22,372	65.7	34.3	100.0	1.90	5.22	3.09
1345	1966/7(2)	16,147	9,900	26,047	62.0	38.0	100.0	1.81	4.60	2.88
1350	1971/2	17,622	12,398	30,020	58.7	41.3	100.0	0.23	4.97	2.32
1355	1976/7	17,865	15,797	33,662	53.1	46.9	100.0			

(1) Census figures.
(2) Treated figures.
Sources: Statistical Yearbook, 1355 (1976/7) & National Census of Population and Housing (5 percent sample), 1355 (1976/7) - Statistical Centre of Iran.

annual rate of growth of population of Iran was constant during 1260-1300 (1881/2-1921/2) period, but it began to rise until reached its peak during 1335-1340 (1956/7-1961/2) and then started to fall.

There are two sets of figures available for the population of Iran in 1345 (1966/7). If the first set, which was the set of figures resulting from the census of that year, is considered to be the correct set the rate of increase of population in Iran would show a fluctuation between 1345 (1966/7) and 1355 (1976/7). The second set, which was also presented by the Statistical Centre of Iran, was a treated set and showed a higher population for 1345 (1966/7) than the census figures and if this set is used, the above-mentioned fluctuation would disappear. However, the set of treated figures have not been used by the Statistical Centre of Iran itself in any table that shows a time series for the population of Iran. Furthermore, the 1350 (1971/2) set of figures has been estimated by the Statistical Centre of Iran before the third census and as a part of 1346-1354 (1967/8-1975/6) series and all the figures in that series seem to be high. The estimated population of 1354 (1975/6) in that series is almost equal to the census figure for the population of 1355 (1976/7).[1]

By using the population figures of the 50-year period between 1305 (1926/7) and 1355 (1976/7) to calculate a polynomial equation,[2] the rate of growth of population in the two 5-year periods 1345-1350 (1966/7-1970/1) and 1350-1355 (1970/1-1976/7) is shown to be on average 2.88 and 2.52 percent per annum, respectively.

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(1) See also section 6-9-4.

(2) See section 6-9-7.

6-2 Evolution of Population

There are usually 4 stages in evolution of a population:(1)

I. A high birth rate together with a high death rate. This combination is a characteristic of pre-developing and stagnated countries and often results in a slow rate of increase of population. Most countries of the world have passed this stage.

II. A high birth rate together with a decreasing death rate due to improvements in sanitation and therapy. The consequence of such a situation is a rapid increase in population and the magnitude of the increase depends on the length of time that this stage of evolution is prevalent in a population.

III. A diminishing birth rate together with a decreasing death rate. This stage usually starts after a period of sustained economic development.

IV. A minimum and almost constant birth rate together with a minimum and almost constant death rate. This stage often begins when a country is fully developed.

Although the actual birth and death rates in Iran are not available, the descending rate of increase of population suggests that the population of Iran may be in its third stage of evolution.

6-3 Age Distribution

When the population of a country has 33 percent of under-20-year-olds, it is generally considered to be young.

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(1) BADE. F., The World of the Year 2000, translated into Farsi by LANKARANI, S., Tehran, 1347 (1968/9).

In Iran, according to the census figures, that share which was 54.6 percent in 1345 (1966/7) increased to 55.2 percent in 1355 (1976/7). However, the share of under-15-year-olds in the total population was 46.1 percent in 1345 (1966/7) and decreased to 44.5 percent in 1355 (1976/7). Similarly, in the same period the share of over-64-year-olds in the total population diminished from 3.8 to 3.5 percent.

The treated figures of 1345 (1966/7) showed different trends. According to those figures the share of under-20-year-olds in the total population was 56.1 percent, whereas the share of over-64-year-olds was 3.4 percent (Table 66).

6-4 Sex Distribution

In 1335 (1956/7), 1345 (1966/7) and 1355 (1976/7) against every 100 females in Iran there were 103.6, 107.4 and 106.2 males, respectively. Having a higher male rather than female population is usually a common characteristic of the developing countries and - inter alia - it probably has an economic cause. In other words, more attention is usually being paid to the male members of families, especially in the early stages of life, because of their future economic values and that in turn manifests itself in a lower death rate among the male population of a country compared to its female population.

6-5 Urban-Rural Distribution

In 1305 (1926/7) some 29.1 percent of the population of Iran were living in the urban areas and during a period of 30 years that ratio increased to 31.4 percent. Although the lower urban death rate

Table 66

POPULATION OF IRAN, BY SEX AND AGE GROUPS
1345 & 1355
(1966/7 & 1976/7)

('000)

Area	Age groups	1345						1355		
		Census figures			Treated figures					
		Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes
Rural	0- 4	1,574	1,431	3,005	1,717	1,610	3,327	1,694	1,543	3,237
	5- 9	1,429	1,307	2,736	1,331	1,233	2,564	1,576	1,458	3,034
	10-14	973	855	1,829	951	875	1,826	1,156	1,069	2,225
	15-19	597	636	1,233	718	706	1,424	798	893	1,691
	20-24	406	544	950	539	597	1,136	560	716	1,276
	25-29	488	550	1,038	540	537	1,077	444	550	994
	30-34	556	528	1,084	508	471	979	383	444	827
	35-39	496	412	908	439	402	841	404	425	829
	40-44	482	381	863	362	334	696	479	424	903
	45-49	299	227	527	275	251	526	415	343	758
	50-54	239	228	467	244	209	453	409	329	738
	55-59	146	124	270	209	172	381	214	159	373
	60-64	226	211	436	177	144	321	170	151	321
	65-69	349(1)	300(1)	649(1)	319(1)	277(1)	596(1)	106	86	192
	70-74	-	-	-	-	-	-	110	100	210
	75-79	-	-	-	-	-	-	66	47	113
	80-84	-	-	-	-	-	-	47	37	84
	85 and over	-	-	-	-	-	-	34	26	60
	Total	8,259	7,735	15,994	8,329	7,818	16,147	9,065	8,800	17,865
Urban	0- 4	793	758	1,551	863	850	1,713	1,116	1,051	2,167
	5- 9	766	730	1,497	712	686	1,398	1,140	1,079	2,219
	10-14	665	604	1,269	647	615	1,262	1,105	972	2,077
	15-19	491	458	948	587	509	1,096	1,024	894	1,918
	20-24	405	368	773	533	402	935	796	737	1,533
	25-29	337	324	661	370	315	685	565	547	1,112
	30-34	336	303	638	304	288	592	453	421	874
	35-39	293	260	553	257	251	508	419	375	794
	40-44	279	219	498	207	189	396	416	349	765
	45-49	193	147	340	173	160	333	338	293	631
	50-54	145	154	300	143	139	282	319	268	587
	55-59	83	84	167	116	114	230	184	150	334
	60-64	130	124	255	85	84	169	133	127	260
	65-69	180(1)	164(1)	344(1)	152(1)	149(1)	301(1)	76	80	156
	70-74	-	-	-	-	-	-	82	86	168
	75-79	-	-	-	-	-	-	50	42	92
	80-84	-	-	-	-	-	-	32	30	62
	85 and over	-	-	-	-	-	-	24	24	48
	Total	5,097	4,698	9,795	5,149	4,751	9,900	8,272	7,525	15,797
Whole country	0- 4	2,367	2,189	4,556	2,580	2,460	5,040	2,810	2,594	5,404
	5- 9	2,195	2,038	4,233	2,043	1,919	3,962	2,716	2,537	5,253
	10-14	1,639	1,459	3,098	1,598	1,490	3,088	2,261	2,041	4,302
	15-19	1,087	1,094	2,181	1,305	1,215	2,520	1,822	1,787	3,609
	20-24	810	912	1,723	1,072	999	2,071	1,356	1,453	2,809
	25-29	825	874	1,699	910	852	1,762	1,009	1,097	2,106
	30-34	892	831	1,723	812	759	1,571	836	865	1,701
	35-39	789	672	1,461	696	653	1,349	823	800	1,623
	40-44	761	600	1,360	569	523	1,092	895	773	1,668
	45-49	492	374	866	448	411	859	753	636	1,389
	50-54	385	383	767	387	348	735	728	597	1,325
	55-59	229	209	437	325	286	611	398	309	707
	60-64	356	335	691	262	228	490	303	278	581
	65-69	530(1)	463(1)	993(1)	471(1)	426(1)	897(1)	182	166	348
	70-74	-	-	-	-	-	-	192	186	378
	75-79	-	-	-	-	-	-	116	89	205
	80-84	-	-	-	-	-	-	79	67	146
	85 and over	-	-	-	-	-	-	58	50	109
	Total	13,356	12,433	25,789	13,478	12,569	26,047	17,337	16,325	33,662

(1) 65 and over.

Sources: Statistical Yearbook, 1356 (1977/8), & National Census of Population and Housing (5 percent sample), 1355 (1976/7) - Statistical Centre of Iran.

(due to better medical facilities), the rural-urban migration and the inclusion of some new settlements in the urban areas[1] contributed to a slightly higher rate of growth of population in these areas, the order or the size of their contribution were not clear. Since 1335 (1956/7), when the rate of increase of population of Iran was at its peak, the share of the rural-urban migration in the total growth of population has continuously increased. Consequently, the increase of proportion of the urban population in the total population of Iran in the 10-year period between 1345 (1966/7) and 1355 (1976/7) was equal to that of the preceding 40 years. In 1355 (1976/7) the urban population accounted for 46.9 percent of the total population of Iran.

Until 1345 (1966/7), the main cause of the rural-urban migration in Iran was the push factor, but since then it has been replaced by the pull factor. In other words, until that year mainly chronic unemployment and under-employment were forcing many rural residents to move to the urban areas; but since that year, when the income gap between the urban and the rural areas started to widen, better income opportunities and living conditions in the urban areas have been attracting the rural residents. The increasing speed of this internal migration created a shortage of labour in the rural areas which gradually became acute. This pull factor has also affected most small towns and attracted many of their residents to the large cities.[2]

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(1) See Chapter 1.

(2) AMANI, M., Urbanization in Iran, Tehran, 1350 (1971/2).

Concurrent with economic development, the absolute size of the rural population in every country usually passes through three successive stages; increase, relative constancy and decrease. The rural population of Iran, which increased during 1305-1355 (1926/7-1976/7), seems to be approaching its relative constancy stage.

The rate of growth of the urban population of Iran which was decreasing during 1345-1350 (1966/7-1971/2) started to rise again after that period due to a substantial increase in the rural-urban migration (Table 65).

6-6 Marital Status

The proportion of married persons of 10 years of age and over in the total population of Iran which was 58.7 percent in 1345 (1966/7) decreased to 56.7 percent in 1355 (1976/7). The number of cases of polygamy which was 51 thousand in the former year went up to 100 thousand in the latter year in spite of the introduction of the Family Protection Law in 1346 (1967/8). In that period the proportion of widowed[1] and divorced[1] persons in the total population as well as the actual number of the latter group decreased, but the proportion of unmarried persons in the total population went up. In 1355 (1976/7) the proportion of married persons, both male and female, was higher among the rural population than in the urban population (Table 67).

Prior to 1346 (1967/8), except for the ethnic minorities, the Civil Code, which was a reflection of the traditional Islamic laws,

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(1) These terms do not include remarried persons.

Table 67

POPULATION OF IRAN, 10 YEARS OF AGE AND OVER, BY AREA, SEX AND MARITAL STATUS
1345 & 1355
(1966/7 & 1976/7)

Year	Area	Sex	Married		Widowed		Divorced		Never married		Not reported		Total	
			Number ('000)	Per-cent	Number ('000)	Per-cent	Number ('000)	Per-cent	Number ('000)	Per-cent	Number ('000)	Per-cent	Number ('000)	Per-cent
1345	Whole country	Male	4,961	56.4	153	1.7	41	0.5	3,602	41.0	37	0.4	8,794	100.0
		Female	5,012	61.1	885	10.8	76	0.9	2,189	26.7	44	0.5	8,206	100.0
		Both sexes	9,973	58.7	1,038	6.1	117	0.7	5,791	34.0	81	0.5	17,000	100.0
1355	Rural	Male	3,438	59.3	100	1.7	14	0.3	2,243	38.7	-	-	5,795	100.0
		Female	3,550	61.2	456	7.9	25	0.4	1,768	30.5	-	-	5,799	100.0
		Both sexes	6,988	60.3	556	4.8	39	0.3	4,011	34.6	-	-	11,594	100.0
	Urban	Male	3,035	50.4	61	1.0	22	0.4	2,897	48.2	-	-	6,015	100.0
		Female	3,023	56.0	443	8.2	51	1.0	1,879	34.8	-	-	5,396	100.0
		Both sexes	6,058	53.1	504	4.4	73	0.6	4,776	41.9	-	-	11,411	100.0
	Whole country	Male	6,473	54.8	161	1.4	36	0.3	5,140	43.5	-	-	11,810	100.0
		Female	6,573	58.7	899	8.0	76	0.7	3,647	32.6	-	-	11,195	100.0
		Both sexes	13,046	56.7	1,060	4.6	112	0.5	8,787	38.2	-	-	23,005	100.0

Sources: Statistical Yearbook, 1355 (1976/7) & National Census of Population and Housing (5 percent sample), 1355 (1976/7) - Statistical Centre of Iran.

was the reference law for all the marital cases. In that year the Family Protection Law passed through Parliament. Little was changed by the introduction of the new law although it was helpful in a few areas. The Family Protection courts which it set up were powerless in most cases and in practice acted as a type of marriage guidance council. Furthermore, little advantage is to be gained from the registration of marriages in Iran, although it has become common especially in the urban areas, and there is no need for the parties of an unregistered marriage to go to those courts. Naturally, the marriage and divorce registration records in Iran are incomplete (Table 68).

The Family Protection Law has been helpful in making the marriage of under-aged girls more difficult by imposing some stiff regulations and penalties. As a result, although the general trend of the rate of marriage in Iran has been slightly downward, the share of married persons among the female under-20-year-olds in 1355 (1976/7) showed a marked reduction compared to that of 1345 (1966/7), (Table 69).

6-7 Active Population

Between 1345 (1966/7) and 1355 (1976/7) the proportion of the active population in the total population of Iran, 10 years of age and over, decreased from 46.1 to 42.3 percent. The reduction happened in the proportions of both male and female active populations. This was mainly due to the increase in the number of students in the country. The trends in the urban areas were similar both for male and female populations, but in the rural areas only the proportion of male active population in the rural male population, 10 years of age and

Table 68

REGISTERED MARRIAGES AND DIVORCES IN IRAN
1345-1355
(1966/7-1976/7)

('000)

Iranian Year	Gregorian Year	Marriage			Divorce		
		Rural	Urban	Total	Rural	Urban	Total
1345	1966/7	-	-	151	-	-	25
1346	1967/8	-	-	153	-	-	15
1347	1968/9	-	-	156	-	-	16
1348	1969/70	77	84	161	4	13	17
1349	1970/1	85	83	168	4	13	17
1350	1971/2	85	81	166	4	13	17
1351	1972/3	85	94	179	3	15	18
1352	1973/4	95	108	203	3	16	19
1353	1974/5	99	114	213	3	17	20
1354	1975/6	66	88	154	3	14	17
1355	1976/7	64	104	168	3	15	18

Sources: Vital Registration Organization (of Iran) Bulletins 1354-1355 (1975/6-1976/7).

Table 69

POPULATION OF IRAN, 10 YEARS OF AGE AND OVER, BY SEX, AGE GROUPS AND MARITAL STATUS
1345 & 1355
(1966/7 & 1976/7)

Age groups	Male						Female					
	1345			1355			1345			1355		
	Total ('000)	Married		Total ('000)	Married		Total ('000)	Married		Total ('000)	Married	
		Number ('000)	Percent of total		Number ('000)	Percent of total		Number ('000)	Percent of total		Number ('000)	Percent of total
10-14	1,639	1	0.1	2,261	5	0.2	1,459	33	2.3	2,041	26	1.3
15-19	1,087	45	4.1	1,822	119	6.5	1,094	489	44.7	1,787	603	33.7
20-24	810	241	29.8	1,356	529	39.0	912	772	84.8	1,453	1,124	77.4
25-29	825	585	70.9	1,009	778	77.1	874	882	94.1	1,097	1,002	91.3
30-34	892	792	88.8	836	765	91.5	831	787	94.7	865	819	94.7
35-39	789	743	94.2	823	789	95.9	672	627	93.3	800	756	94.5
40-44	761	728	95.7	895	868	97.0	600	528	88.0	773	704	91.1
45-49	492	471	95.7	753	728	96.7	374	304	81.6	636	548	86.2
50-54	385	362	94.0	728	700	96.2	383	257	67.1	597	456	76.4
55-59	229	215	93.9	398	378	95.0	209	129	61.7	309	206	66.7
60-64	356	325	91.3	303	277	91.4	335	142	42.4	278	139	50.0
65 and over	530	453	85.5	627	537	85.6	463	122	26.3	559	190	34.0
Total	8,794	4,961	56.4	11,811	6,473	54.8	8,206	5,012	61.1	11,195	6,573	58.7
Total 15-44	5,164	3,134	60.7	6,741	3,848	57.1	4,983	4,025	80.8	6,775	5,009	73.9
Total 20-49	4,569	3,560	77.9	5,672	4,457	78.6	4,263	3,840	90.1	5,624	4,954	88.1
Total 15-39	4,403	2,406	54.6	5,846	2,980	51.0	4,383	3,497	79.8	6,002	4,304	71.7
Total 20-44	4,077	3,089	75.8	4,919	3,729	75.8	3,889	3,536	90.9	4,988	4,405	88.3

Sources: Statistical Yearbook, 1355 (1976/7) & National Census of Population and Housing (5 percent sample), 1355 (1976/7) - Statistical Centre of Iran.

over, diminished whereas that of the female active population increased. The labour shortage in the rural areas especially in the latter part of the period gave the opportunity to women to take over some jobs which had fallen vacant because of the migration of male labourers (Table 70).

The ratios of activity in the rural areas have always been higher than those of the urban areas, in particular among the female population. According to the censuses' definition the economically active population includes all persons 10 years of age and over who at the time of a census were employed, seasonally employed or unemployed but seeking work. By this definition a large percentage of the rural female population of Iran, which play much more active roles than the urban female population, were not considered economically active. This includes many women who contribute to the financial status of their families by producing some rural handicrafts (e.g. carpets, baskets, etc.) or undertaking some of the family work. Moreover, rural women usually produce many of the requirments of their families (e.g. bread, dress, etc.)[1] which in the urban areas are being purchsed either as goods or services.

6-8 Employment and Unemployment

In 1355 (1976/7) some 33.9 percent of the employed[2] population of Iran were working in agriculture which was by far the largest occupation group in the country. Manufacturing (18.9 percent),

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(1) Including spinning, cloth-weaving and dress making.

(2) At the time of the census.

Table 70

POPULATION OF IRAN, 10 YEARS OF AGE AND OVER, BY AREA, SEX AND ECONOMIC ACTIVITY
1345 & 1355
(1966/7 & 1976/7)

Year	Area	Male			Female			Both sexes		
		Total ('000)	Active		Total ('000)	Active		Total ('000)	Active	
			Number ('000)	Percent of total		Number ('000)	Percent of total		Number ('000)	Percent of total
1345	Rural	5,257	4,359	82.9	4,997	714	14.3	10,254	5,073	49.5
	Urban	3,537	2,449	69.2	3,209	319	9.9	6,746	2,768	41.0
	Whole country	8,794	6,808	77.4	8,206	1,033	12.6	17,000	7,841	46.1
1355	Rural	5,794	4,473	77.2	5,800	965	16.6	11,594	5,438	46.9
	Urban	6,016	3,807	63.3	5,395	488	9.0	11,411	4,295	37.6
	Whole country	11,810	8,280	70.1	11,195	1,453	13.0	23,005	9,733	42.3

Sources: Statistical Yearbook, 1355 (1976/7) & National Census of Population and Housing (5 percent sample), 1355 (1976/7) - Statistical Centre of Iran.

community, social and personal services (17.5 percent) and construction (13.4 percent) were the other main occupation groups.

In the rural areas agriculture (64.4 percent) and construction (15.6 percent) were the two most important occupation groups for the male workers, whereas manufacturing (65.8 percent) and agriculture (28.5 percent) were the two dominant occupation groups for the female workers.

In the urban areas there was more diversity in the occupation groups of the male work force and community, social and personal services (28.8 percent), manufacturing (20.3 percent), construction (15.2 percent) and trade and catering (14.4 percent) were the most important categories, while the female work force were mainly occupied in community, social and personal services (56.4 percent) and manufacturing (31.1 percent), (Table 71).

At the time of the population census of 1355 (1976/7) there were 944 thousand unemployed persons in Iran, 752 thousand of them in the rural areas and the remaining 192 thousand in the urban areas. These figures were much too high for the prevailing circumstances of the time in Iran and the actual time of the enumeration (late November) was a significant element in inflating them. According to the census itself, out of the total number of unemployed population 660 thousand (627 thousand of them agricultural workers) were seasonally unemployed persons who were not seeking work. Therefore, they should not be classified as unemployed persons. School-leavers at different (1)

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(1) June and late October or early November are the two usual times that school-leavers know the result of their exams and start to seek work.

EMPLOYED POPULATION OF IRAN, 10 YEARS OF AGE AND OVER, BY SEX, AREA AND MAJOR INDUSTRY GROUPS
1355
(1976/7)

Number and percent	Major industry groups	Rural			Urban			Whole country		
		Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes
Number	Agriculture, hunting, forestry and fishing	2,536,071	213,161	2,749,232	219,609	9,700	229,309	2,755,680	222,861	2,978,541
	Mining and quarrying	36,047	460	36,507	53,828	3,575	57,403	89,875	4,035	93,910
	Manufacturing	287,881	491,656	779,537	739,625	142,434	882,059	1,027,506	634,090	1,661,596
	Construction	615,612	3,943	618,555	553,444	5,067	558,511	1,169,056	8,010	1,177,066
	Electricity, gas and water	9,560	60	9,620	50,158	1,703	51,861	59,718	1,763	61,481
	Wholesale and retail trade and restaurants and hotels	127,503	3,040	130,543	524,437	10,703	535,140	651,940	13,743	665,683
	Transport, storage and communication	98,828	440	99,268	326,091	8,185	334,276	424,919	8,635	443,544
	Financing, insurance, real estate and business services	4,415	80	4,495	86,422	9,671	96,093	90,837	9,751	100,588
	Community, social and personal services	202,303	29,007	231,310	1,051,295	258,326	1,309,631	1,253,598	287,333	1,540,931
	Activities not adequately defined	20,593	6,003	26,596	40,595	8,363	48,958	61,188	14,366	75,554
	Total	3,938,813	746,850	4,685,663	3,645,504	457,727	4,103,231	7,584,317	1,204,577	8,788,894
Percent	Agriculture, hunting, forestry and fishing	64.4	28.5	58.7	6.0	2.1	5.6	36.3	18.5	33.9
	Mining and quarrying	0.9	0.1	0.8	1.5	0.8	1.4	1.2	0.3	1.1
	Manufacturing	7.3	65.8	16.6	20.3	31.1	21.5	13.6	52.6	18.9
	Construction	15.6	0.4	13.2	15.2	1.1	13.6	15.4	0.7	13.4
	Electricity, gas and water	0.3	+	0.2	1.4	0.4	1.3	0.8	0.1	0.7
	Wholesale and retail trade and restaurants and hotels	3.3	0.4	2.8	14.4	2.4	13.0	8.6	1.1	7.6
	Transport, storage and communication	2.5	0.1	2.1	8.9	1.8	8.2	5.6	0.7	4.9
	Financing, insurance, real estate and business services	0.1	+	0.1	2.4	2.1	2.3	1.2	0.8	1.1
	Community, social and personal services	5.1	3.9	4.9	28.8	56.4	31.9	16.5	23.9	17.5
	Activities not adequately defined	0.5	0.8	0.6	1.1	1.8	1.2	0.8	1.2	0.9
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: National Census of Population and Housing (5 percent sample), 1355 (1976/7) - Statistical Centre of Iran.

levels of educational attainments accounted for 152 thousand unemployed persons who were seeking work. The rest of the unemployed population were composed of 86 thousand illiterate persons (mostly young) who for the first time wanted to start work, and only 46 thousand persons who had been employed and lost their jobs and at the time of census were seeking work. The average number of unemployed in Iran in that year was probably equal to the sum of the last two figures.

6-9 Population Projection

6-9-1 Introduction

To project the future population of Iran two sets of problems had to be faced. The first set was composed of the problems arising from the lack of many basic data like birth, death and fertility rates, and the second set comprised the deficiencies and short-comings of the population census. To overcome these problems some assumptions had to be made and the available data had to be used to their maximum possible potential. The final results should be viewed alongside all the provisos and qualifications.

6-9-2 Choice of Method

The formulae which dealt with the changes of the total population like:

$$P_t = Ce^{rt}$$

where:

e and C = constants

r = rate of change

t = denoted time[1]

or:

$$P_t = (Ce^{-rt} + {}^{k}/_{r})^{-1}$$

where:

k = constant

could not be used. The first one indicated a logarithmic curve with a constant rate of change which was not in accord with the prevailing population trend in Iran. The second formula which represented an S-shaped curve with an upper limit of ${}^{r}/_{k}$,[2] was also of limited value to this study because to use it for projection the k had to be a pre-determined figure. The component method or the life table method could not be used to project the future population of Iran due to the lack of data. Therefore, a hybrid of the conventional methods had to be adopted to deal with the scanty available data.

6-9-3 Urban-Rural and Sex Distributions

There were two possible ways to estimate the future rural-urban division in Iran, either to project the rural and the urban populations separately and sum them up to yield the total population, or to project the total population and estimate its rural-urban distribution. The latter way was preferred because the former, owing to the increasing speed of urbanization in Iran and also the lack of

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(1) It is in fact the compound rate formula. See Chapter 3 section 3-9.

(2) COX, P. R., Demography, fifth edition, Cambridge University Press, 1978.

data about the rural-urban migration in the country, resulted in a "practical" error. In other words, the summations of the rural and the urban parts of some population cohorts after 10 years were larger than the initial populations of those cohorts.(1) Conversely, the share of the male population in the total population was about the same as that of the female population and the survival rates of the male cohorts were different from those of the female cohorts. Thus, separate projections were made for the male and the female population.

6-9-4 Treated Figures

The set of treated figures of the Statistical Centre of Iran for 1345 (1966/7) seemed not to represent the population of Iran properly in that year when studied in line with the population

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(1) e.g. Assuming a population of "no total change" but with internal migration at the time t is like:

$$P_t = \underset{\text{rural}}{2} + \underset{\text{urban}}{2} = \underset{\text{total}}{4}$$

Also assuming after 10 years it is like:

$$P_{t+10} = \underset{\text{rural}}{1} + \underset{\text{urban}}{3} = \underset{\text{total}}{4}$$

The rate of change of the rural population is -0.5 for the period and the rate of change of the urban population is 0.5 for the period. A projection along those lines for a period of 10 years results in :

$$P_{t+20} = \underset{\text{rural}}{[1(1-0.5)]} + \underset{\text{urban}}{[3(1+0.5)]} = \underset{\text{total}}{0.5 + 4.5}$$

which is:

$$P_{t+20} = 5 \neq 4$$

figures of 1355 (1976/7). The total population of the 30-34, 35-39 and 40-44 cohorts in 1345 (1966/7) was 370 thousand (299 thousand males and 71 thousand females) less than the total population of the 40-44, 45-49 and 50-54 cohorts in 1355 (1976/7), while it should have been the opposite because the persons in the latter cohorts were survirors of the former cohorts (Table 66). Such an increase was only justifiable if there was a huge immigration of foreigners to Iran and/or there was an extraordinary and massive re-entry of the Iranians who were born in Iran but were living abroad. None of these conditions were met to the extent to justify the extra 370 thousand population in those 3 cohorts. According to the census of 1355 (1976/7) the total number of people born outside Iran in those three cohorts was 33 thousand, considering that not all of them were foreigners. Also a programme for expulsion of Iranian citizens was carried out by Iraq in early 1970's, but the total number of people affected was estimated to be 120-150 thousand. The majority of these people were women and children and a large number of them were born outside Iran and it was believed that most of them gradually went back after the improvement of the relationship between the two countries.

6-9-5 Survival Rates

The survival rates of all the cohorts from 1345 (1966/7) to 1355 (1976/7) were intended to be calculated in the following way:-

$$S_m = \frac{P_{c+10,\ t+10}}{P_{c,\ t}}$$

where:

S_m = survival rate m

$P_{c,\ t}$ = population of cohort c in year t

$P_{c+10,\ t+10}$ = population of cohort c after 10 years in year t+10

therefore, for the first male cohort

$$S_{m1} = \frac{P_{m,\ (10-14),\ 1335}}{P_{m,\ (0-4),\ 1345}}$$

But there was a problem of the type that was described in "6-9-4" above, although on a much smaller scale. The 30-34 and 40-44 male cohorts in the census of 1355 (1976/7) had 29 thousand more population than their initial cohorts in the census of 1345 (1966/7), and similarly the 25-29 female cohort in the third population census had 3 thousand more population than its initial cohort in the second population census. These differences could be explained in two groups. The first, which was in fact one of the problems of the population censuses in Iran, was the tendency of people to report their ages by round figures and that showed up in some bulged cohorts. The second was the flow of immigrants to Iran.

There was no figure available to show the number of immigrants to Iran in the period between the second and the third population censuses. However, an estimate was made to be used in the calculations of survival rates. The figures for the people born outside Iran in the censuses of 1335 (1956/7), 1345 (1966/7) and 1355 (1976/7) were 45, 57 and 185 thousand respectively. Prior to 1345 (1966/7) immigration to Iran was not significant, therefore, it was assumed that the figures of the first two censuses represented

the Iranians born outside Iran.[1] The compound rate formula was used to estimate what the figure for 1355 (1976/7) would have been, had the circumstances remained the same and the number of Iranians born outside Iran grown by the same rate as the average annual rate between the first two population censuses. The estimated figure was 71 thousand and the difference of it with the actual figure which amounted to 114 thousand (62 thousand males and 52 thousand females), was assumed to be the number of immigrants. Furthermore, it was assumed that these immigrants were spread in the cohorts up to the age of 65 according to a normal distribution (Table 72). The age of 65 was chosen because it was the usual age of retirement in many countries. The chosen normal distribution implied that:

- The usual working age of immigrants were between the ages of 20 and 65.
- The majority of immigrants (62 percent) were aged 20-45 and those above the age of 50 formed a small minority of the immigrants.
- Most under-20-year-old immigrants were members of the families of those who had come to the country with their families.

These normally distributed figures were deducted from the population of the 1355 (1976/7) cohorts to yield the cohorts without immigrants.

To solve the problem of bulging cohorts with round figures the

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(1) See Chapter 3 section 3-9.

Table 72

ESTIMATION OF DISTRIBUTION OF IMMIGRANTS IN DIFFERENT AGE GROUPS
1355
(1976/7)

Age	Ordinates (x)	Integrals [Q(x)]	Age groups	Male immigrants ('000)	Female immigrants ('000)
0	-2.33	0.99	0- 4	2	1
5	-1.97	0.98	5- 9	2	2
10	-1.61	0.95	10-14	3	3
15	-1.25	0.90	15-19	5	4
20	-0.90	0.81	20-24	7	5
25	-0.54	0.70	25-29	8	7
30	-0.18	0.57	30-34	9	8
35	0.18	0.43	35-39	8	7
40	0.54	0.30	40-44	7	5
45	0.90	0.19	45-49	5	4
50	1.25	0.10	50-54	3	3
55	1.61	0.05	55-59	2	2
60	1.97	0.02	60-64	1	1
65	2.33	0.01	0-64	62	52

moving averages of the cohorts (with the centred span of 2) were calculated. An extra cohort for the population of 1345 (1966/7) was needed to make it possible to calculate a moving average for the 0-4 cohort.[1] To provide this extra cohort the total number of registered births in the 1345-1350 (1966/7-1971/2) period was used as the (-5)-(-1) cohort.[2]

On the basis of the moving averages of the cohorts without immigrants the decennial survival rates of male and female populations were estimated and by applying them to the original cohorts, including immigrants, of 1355 (1976/7) the cohorts of above the age of 10 for 1365 (1986/7), above the age of 20 for 1375 (1996/7) and above the age of 30 for 1385 (2006/7) were projected (Tables 73 and 74). In this way three implicit assumptions were made:

- Those immigrants who were living in Iran in 1355 (1976/7) would remain in the country. After the recent revolution many foreigners and some Iranians have left the country, but the share of the total number of these emigrants in the total population of Iran is not significant and the number of people who have gone back to the country and also the new wave of expulsion of Iranians from Iraq would probably compensate for it.
- The survival rates of the immigrants in different cohorts

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(1) In calculating moving averages with the span of 2 the first and the last figures of every series are lost.

(2) Although these figures do not contain the still-births figures, the population projections were not affected because the net increase of population was important in those estimations.

Table 73

PROJECTION OF MALE POPULATION OF IRAN (1)

Age groups	1345 (1966/7) Population ('000)	1355 (1976/7) Population ('000)	People born outside Iran ('000)	Immigrants ('000)	Population without immigrants ('000)	Moving average for 1345 (1966/7)		Moving average for 1355 (1976/7)		Decennial survival rates	Projection ('000) 1365 1986/7	1375 1996/7	1385 2006/7	1369 1990/1	1379 2000/1
(-5) - (-1)	2,792					2,579.5									
0- 4	2,367	2,810	6	2	2,808		2,430.25			0.931					
5- 9	2,195	2,716	12	2	2,714	2,281.0	2,099.00	2,762.0	2,624.00	0.862					
10-14	1,639	2,261	11	3	2,258	1,917.0	1,640.00	2,486.0	2,261.75	0.841	2,616				
15-19	1,087	1,822	9	5	1,817	1,363.0	1,155.75	2,037.5	1,810.25	0.904	2,341				
20-24	810	1,356	9	7	1,349	948.5	883.00	1,583.0	1,379.00	0.982	1,902	2,200		2,021	
25-29	825	1,009	9	8	1,001	817.5	838.00	1,175.0	1,044.50	0.998	1,647	2,116		1,835	
30-34	892	836	9	9	827	858.5	849.50	914.0	867.50	0.983	1,332	1,867	2,161	1,546	1,985
35-39	789	823	8	8	815	840.5	807.75	821.0	836.25	0.962	1,007	1,644	2,112	1,262	1,831
40-44	761	895	7	7	888	775.0	700.75	851.5	834.75	0.925	822	1,309	1,836	1,017	1,520
45-49	492	753	6	5	748	626.5	532.50	818.0	777.25	0.854	792	969	1,581	863	1,214
50-54	385	728	5	3	725	438.5	372.75	736.5	648.50	0.793	828	760	1,211	801	940
55-59	229	398	3	2	396	307.0	299.75	560.5	454.75	0.716	643	676	827	656	736
60-64	356	303	2	1	302	292.5	367.75	349.0	295.50	0.464	577	657	603	609	635
65-69	530	182	4	0	182	443.0		242.0	214.50		285	460	484	355	470
70-74		192			192			187.0	170.50		141	268	305	192	283
75-79		116			116			154.0	125.75	0.477	299	346	512	318	412
80-84		79			79			97.5	83.00						
85 and over		58			58			68.5							
Total	13,356	17,337	100	62	17,275	-	-	-	-	-	15,232	13,272	11,632	11,475	10,026

PROJECTION OF FEMALE POPULATION OF IRAN (I)

Age groups	1345 (1966/7) Population ('000)	1355 (1976/7) Population ('000)	1355 (1976/7) People born outside Iran ('000)	1355 (1976/7) Immigrants ('000)	1355 (1976/7) Population without immigrants ('000)	Moving average for 1345 (1966/7)		Moving average for 1355 (1976/7)		Decennial survival rates	Projection ('000) 1365 1986/7	1375 1996/7	1385 2006/7	1369 1990/1	1379 2000/1
(-5) - (-1)	2,647					2,418.0									
0- 4	2,189	2,594	6	1	2,593		2,265.75			0.926					
5- 9	2,038	2,537	12	2	2,535	2,113.5	1,931.00	2,564.0	2,425.00	0.913					
10-14	1,459	2,041	9	3	2,038	1,748.5	1,512.50	2,286.5	2,098.25	0.954	2,402				
15-19	1,094	1,787	7	4	1,783	1,276.5	1,139.75	1,910.5	1,763.00	0.984	2,316				
20-24	912	1,453	7	5	1,448	1,003.0	948.00	1,615.5	1,442.25	0.949	1,947	2,292		2,085	
25-29	874	1,097	8	7	1,090	893.0	872.75	1,269.0	1,121.25	0.920	1,758	2,279		1,966	
30-34	831	865	8	8	857	852.5	802.00	973.5	899.25	0.923	1,379	1,848	2,175	1,567	1,979
35-39	672	800	7	7	793	751.5	693.75	825.0	802.75	0.946	1,009	1,618	2,097	1,253	1,810
40-44	600	773	5	5	768	636.0	561.50	780.5	740.25	0.902	798	1,273	1,706	988	1,446
45-49	374	636	4	4	632	487.0	432.75	700.0	656.50	0.775	757	955	1,530	836	1,185
50-54	383	597	4	3	594	378.5	337.25	613.0	506.75	0.772	697	720	1,148	706	891
55-59	209	309	2	2	207	296.0	284.00	400.5	335.50	0.750	493	587	740	531	648
60-64	335	278	2	1	334	272.0	335.50	270.5	260.25	0.466	461	538	556	492	545
65-69	463	166	4	0	166	399.0		250.0	213.00		232	370	440	287	398
70-74		186			186			176.0	156.50		130	215	251	164	229
75-79		89			89			137.0	107.50	0.445	248	271	381	257	315
80-84		67			67			78.0	68.25						
85 and over		50			50			58.5							
Total	12,433	16,325	89	52	16,273	-	-	-	-	-	14,627	12,966	11,024	11,132	9,446

would be equal to the average survival rates of those cohorts.

- The future immigration to Iran would not be significant.

6-9-6 Crude Fertility Factors

To complete the projection of the future population of Iran the two youngest cohorts, 0-4 and 5-9, for 1365, 1375 and 1385 (1986/7, 1996/7 and 2006/7) had to be estimated. Other cohorts could be projected by the application of the survival rates to the two youngest cohorts.

Every 0-4 cohort was projected by the calculation of a crude fertility factor or the ratio between a 0-4 cohort and the number of fertile women at that time. By using various assumptions about the fertility span, different results could be obtained. Four alternatives of 15-44, 20-49, 15-39 and 20-44 for the fertility span were used for 1345 (1966/7) and 1355 (1976/7) in the following way:

$$CFF_{s,n,t} = \frac{P_{s,\ (0-4),\ t}}{P_{F,\ (C_n),\ t}}$$

where:

CFF = crude fertility factor

s = sex, either male (M) or female (F)

n = alternatives 1, 2, 3 and 4

t = year

P = population

C_n = fertility span

therefore, for the male 0-4 cohort and the first alternative in 1345

(1966/7) it was:

$$CFF_{M,\ 1,\ 1345} = \frac{P_{M,\ (0-4),\ 1345}}{P_{F,\ (15-44),\ 1345}}$$

The rate of change of every crude fertility factor was calculated by using the compound rate formula and the results were extended to calculate the corresponding factors in 1365, 1375 and 1385 (1986/7, 1996/7 and 2006/7) and by application of these factors the 0-4 cohorts of those years were estimated (Table 75).

The decennial survival rates of 0-4 cohorts were converted to quinquennial rates by using the compound rate formula and by multiplying every 0-4 cohort by the relevant quinquennial rate the corresponding 5-9 cohort was estimated. Other cohorts were projected by applying the decennial survival rates to these estimated 0-4 and 5-9 cohorts (Table 76).

6-9-7 Projection of Urbanization

During 1305-1355 (1926/7-1976/7) the share of urban population in the total population showed a non-linear correlation with time.[1] Thus the following polynomial equation of the second degree was calculated from the figures of those years:

$$Y = 19364.32545 - 29.3801958X + 0.011160839X^2$$

where:

X = year (Iranian)

Y = share of urban population in the total population (percent)

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(1) That of the rural population is the same as the urban population but in the other direction.

Table 75

PROJECTION OF POPULATION OF IRAN (II)

Alternative	Description	1345 1966/7	1355 1976/7	1365 1986/7	1375 1996/7	1385 2006/7
1	Female population 15-44 ('000)	4,983	6,775	9,207	12,008	14,415
	Female population 0-4 / Female population 15-44	0.4393	0.3829	0.3337	0.2909	0.2535
	Male population 0-4 / Female population 15-44	0.4750	0.4148	0.3621	0.3162	0.2761
	Female population 0-4 ('000)	2,189	2,594	3,072	3,493	3,654
	Male population 0-4 ('000)	2,367	2,810	3,334	3,797	3,980
2	Female population 20-49 ('000)	4,263	5,624	7,648	10,265	13,047
	Female population 0-4 / Female population 20-49	0.5135	0.4612	0.4143	0.3721	0.3343
	Male population 0-4 / Female population 20-49	0.5552	0.4996	0.4496	0.4046	0.3641
	Female population 0-4 ('000)	2,189	2,594	3,169	3,820	4,362
	Male population 0-4 ('000)	2,367	2,810	3,439	4,153	4,750
3	Female population 15-39 ('000)	4,383	6,002	8,409	10,799	12,837
	Female population 0-4 / Female population 15-39	0.4994	0.4322	0.3740	0.3236	0.2801
	Male population 0-4 / Female population 15-39	0.5400	0.4682	0.4059	0.3519	0.3050
	Female population 0-4 ('000)	2,189	2,594	3,144	3,495	3,596
	Male population 0-4 ('000)	2,367	2,810	3,413	3,800	3,915
4	Female population 20-44 ('000)	3,889	4,988	6,891	9,310	11,764
	Female population 0-4 / Female population 20-44	0.5629	0.5200	0.4805	0.4439	0.4102
	Male population 0-4 / Female population 20-44	0.6086	0.5634	0.5214	0.4824	0.4467
	Female population 0-4 ('000)	2,189	2,594	3,311	4,133	4,826
	Male population 0-4 ('000)	2,367	2,810	3,593	4,491	5,255

Table 76

PROJECTION OF POPULATION OF IRAN (III)

Alternative	Age groups	Male ('000)					Female ('000)				
		1365 1986/7	1375 1996/7	1385 2006/7	1369 1990/1	1379 2000/1	1365 1986/7	1375 1996/7	1385 2006/7	1369 1990/1	1379 2000/1
1	0- 4	3,334	3,797	3,980	3,519	3,870	3,072	3,493	3,654	3,240	3,557
	5- 9	3,217	3,664	3,841	3,396	3,735	2,955	3,360	3,515	3,117	3,422
	10-14		3,104	3,535	2,811	3,276		2,845	3,234	2,579	3,001
	15-19		2,773	3,158	2,514	2,927		2,698	3,068	2,469	2,846
	20-24			2,610		2,364			2,714		2,461
	25-29			2,507		2,272			2,655		2,429
	Total	6,551	13,338	19,631	12,240	18,444	6,027	12,396	18,840	11,405	17,716
2	0- 4	3,439	4,153	4,750	3,725	4,392	3,169	3,820	4,362	3,429	4,037
	5- 9	3,319	4,008	4,584	3,595	4,238	3,049	3,675	4,196	3,299	3,883
	10-14		3,202	3,866	2,850	3,468		2,934	3,537	2,615	3,175
	15-19		2,861	3,455	2,549	3,099		2,784	3,355	2,503	3,012
	20-24			2,693		2,397			2,800		2,495
	25-29			2,586		2,304			2,739		2,463
	Total	6,758	14,224	21,934	12,719	19,898	6,218	13,213	20,989	11,846	19,065
3	0- 4	3,413	3,800	3,915	3,568	3,846	3,144	3,495	3,596	3,284	3,535
	5- 9	3,294	3,667	3,778	3,443	3,711	3,025	3,362	3,495	3,160	3,415
	10-14		3,178	3,538	2,841	3,322		2,911	3,236	2,606	3,041
	15-19		2,839	3,161	2,540	2,968		2,762	3,070	2,494	2,885
	20-24			2,672		2,389			2,777		2,486
	25-29			2,567		2,296			2,718		2,455
	Total	6,707	13,484	19,631	12,392	18,532	6,169	12,530	18,892	11,544	17,817
4	0- 4	3,593	4,491	5,255	3,952	4,797	3,311	4,133	4,826	3,640	4,410
	5- 9	3,467	4,334	5,071	3,814	4,629	3,186	3,976	4,643	3,501	4,243
	10-14		3,345	4,181	2,908	3,679		3,066	3,827	2,668	3,370
	15-19		2,989	3,736	2,600	3,288		2,908	3,630	2,553	3,197
	20-24			2,813		2,445			2,925		2,545
	25-29			2,702		2,350			2,861		2,512
	Total	7,060	15,159	23,758	13,274	21,188	6,497	14,083	22,712	12,362	20,277

The coefficient of multiple correlation was 0.9713 and the standard errors of coefficients were 2604.911, 3.918 and 0.001, respectively. The polynomial equations of the third and the fourth degrees would produce higher coefficients of correlation, but they would also result in values of more than 100 percent for the share of urban population in the total population in 1385 (2006/7). The required figures were calculated from the above formula (Table 77).

6-9-8 Results

The 1379 (2000/1) cohorts were interpolated, by using the simple rate formula[1], from those of the years 1375 (1996/7) and 1385 (2006/7) in the following way:

$$P_{C,\ t+10} = P_{C,\ t}\ (1+10r)$$

where :

$P_{C,\ t}$ = population of cohort C (e.g. 0-4) in the year t (e.g. 1375)

$P_{C,\ t+10}$ = population of cohort C (e.g. 0-4) in the year t+10 (e.g. 1385)

r = rate of change

and then :

$$P_{C,\ t+4} = P_{C,\ t}\ (1+4r)$$

Similarly, the 1369 (1990/1) cohorts were interpolated from those of years 1365 (1986/7) and 1375 (1996/7), (Tables 73, 74 and 76).

The results of the alternatives 1 and 3, mentioned in "6-9-6"

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(1) See Chapter 3 section 3-9.

Table 77

PROJECTED POPULATION OF IRAN, BY AREA

Year		Distribution (%)			Population ('000)		
		Rural	Urban	Total	Rural	Urban	Total
1345 (1966/7)		62.0	38.0	100.0	15,994	9,795	25,789
1355 (1976/7)		53.1	46.9	100.0	17,865	15,797	33,662
1365 (1986/7)	L	44.5	55.5	100.0	18,884	23,553	42,437
	M	44.5	55.5	100.0	19,062	23,773	42,835
	H	44.5	55.5	100.0	19,320	24,096	43,416
1375 (1996/7)	L	32.5	67.5	100.0	16,891	35,081	51,972
	M	32.5	67.5	100.0	17,444	36,231	53,675
	H	32.5	67.5	100.0	18,031	37,449	55,480
1385 (2006/7)	L	18.2	81.8	100.0	11,125	50,002	61,127
	M	18.2	81.8	100.0	11,935	53,644	65,579
	H	18.2	81.8	100.0	12,581	56,545	69,126
1369 (1990/1)	L	40.0	60.0	100.0	18,501	27,751	46,252
	M	40.0	60.0	100.0	18,869	28,303	47,172
	H	40.0	60.0	100.0	19,297	28,946	48,243
1379 (2000/1)	L	27.1	72.9	100.0	15,076	40,556	55,632
	M	27.1	72.9	100.0	15,836	42,559	58,435
	H	27.1	72.9	100.0	16,514	44,423	60,937

above, were almost the same. Therefore, the alternative 3 was omitted and the results of the alternatives 1, 2 and 4 have been presented in the tables as the low (L), the medium (M) and the high (H) projections, respectively.

In 1379 (2000/1) the population of Iran would be between 55.6 and 60.9 million, about 73 percent of which would live in the urban areas (Table 77). The share of female population in the total population would increase from 48.5 percent in 1355 (1976/7) to 48.8 percent in 1379 (2000/1), (Table 78). The population of Iran would still be young in 1379 (2000/1) although it would become older than that of the 1355 (1976/7), (Table 79). The average rate of increase of population during 1355-1379 (1976/7-2000/1) would be between 2.12 and 2.5 percent per annum.

Table 78

PROJECTED POPULATION OF IRAN, BY SEX

Year		Population ('000)			Percentage		
		Female	Male	Both sexes	Female	Male	Both sexes
1345 (1966/7)		12,433	13,356	25,789	48.2	51.8	100.0
1355 (1976/7)		16,325	17,337	33,662	48.5	51.5	100.0
1365 (1986/7)	L	20,654	21,783	42,437	48.7	51.3	100.0
	M	20,845	21,990	42,835	48.7	51.3	100.0
	H	21,124	22,292	43,416	48.7	51.3	100.0
1375 (1996/7)	L	25,362	26,610	51,972	48.8	51.2	100.0
	M	26,179	27,496	53,675	48.8	51.2	100.0
	H	27,049	28,431	55,480	48.8	51.2	100.0
1385 (2006/7)	L	29,864	31,263	61,127	48.9	51.1	100.0
	M	32,013	33,566	65,579	48.8	51.2	100.0
	H	33,736	35,390	69,126	48.8	51.2	100.0
1369 (1990/1)	L	22,537	23,715	46,252	48.7	51.3	100.0
	M	22,978	24,194	47,172	48.7	51.3	100.0
	H	23,494	24,749	48,243	48.7	51.3	100.0
1379 (2000/1)	L	27,162	28,470	55,632	48.8	51.2	100.0
	M	28,511	29,924	58,435	48.8	51.2	100.0
	H	29,723	31,214	60,937	48.8	51.2	100.0

Table 79

PROJECTED POPULATION OF IRAN, BY MAJOR AGE GROUPS

Year		Population ('000)				Percentage			
		Under 15	15-64	65 and over	Total	Under 15	15-64	65 and over	Total
1345 (1966/7)		11,887	12,909	993	25,789	46.1	50.1	3.8	100.0
1355 (1976/7)		14,959	17,518	1,185	33,662	44.5	52.0	3.5	100.0
1365 (1986/7)	L	17,596	23,506	1,335	42,437	41.5	55.4	3.1	100.0
	M	17,994	23,506	1,335	42,835	42.0	54.9	3.1	100.0
	H	18,575	23,506	1,335	43,416	42.8	54.1	3.1	100.0
1375 (1996/7)	L	20,263	29,779	1,930	51,972	39.0	57.3	3.7	100.0
	M	21,792	29,953	1,930	53,675	40.6	55.8	3.6	100.0
	H	23,345	30,205	1,930	55,480	42.1	54.4	3.5	100.0
1385 (2006/7)	L	21,759	36,995	2,373	61,127	35.6	60.5	3.9	100.0
	M	25,295	37,911	2,373	65,579	38.6	57.8	3.6	100.0
	H	27,803	38,950	2,373	69,126	40.2	56.4	3.4	100.0
1369 (1990/1)	L	18,662	26,017	1,573	46,252	40.3	56.3	3.4	100.0
	M	19,513	26,086	1,573	47,172	41.4	55.3	3.3	100.0
	H	20,483	26,187	1,573	48,243	42.4	54.3	3.3	100.0
1379 (2000/1)	L	20,861	32,664	2,107	55,632	37.5	58.7	3.8	100.0
	M	23,193	33,135	2,107	58,435	39.7	56.7	3.6	100.0
	H	25,128	33,702	2,107	60,937	41.2	55.3	3.5	100.0

CHAPTER 7: PRODUCTION AND MARKETING

7-1 Available Statistics

There were different sets of figures available about the production of agricultural commodities in Iran but no consensus existed about any of them. Most organizations which were related to agriculture were using their own sets of estimated data but the two main sets were presented by the Ministry of Agriculture and Rural Development and the Statistical Centre of Iran. Every year the Ministry gathered and summed up the estimates of its regional offices about the production of agricultural commodities in their regions. This set, which was confined to major crops and animal products, was the one that was used by the Central Bank of Iran in the calculations of national accounts and also by the official international institutes (1) (Table 80). The set presented by the Statistical Centre of Iran was the result of the national or sample censuses. Therefore, it was discontinuous and only contained the figures of those years when the agricultural censuses had been carried out, but for some commodities the figures were continuous because for these items there were other ways of continual data gathering like measuring the intakes of sugar-beet by the sugar factories. This set was generally confined to major crops (Table 81) but for 1352 and 1353 (1973/4 and 1974/5) more comprehensive figures were available (Tables 82 and 83).

Some differences between corresponding figures in the

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(1) e.g. Food and Agriculture Organization of the United Nations (FAO).

ESTIMATED MAJOR FARMING CROPS AND ANIMAL PRODUCTS IN IRAN
1338-1356
(1959/60-1977/8)

('000 Tons)

Iranian year Gregoraian year	1338 1959/60	1339 1960/1	1340 1961/2	1341 1962/3	1342 1963/4	1343 1964/5	1344 1965/6	1345 1966/7	1346 1967/8	1347 1968/9	1348 1969/70	1349 1970/1	1350 1971/2	1351 1972/3	1352 1973/4	1353 1974/5	1354 1975/6	1355 1976/7	1356 1977/8
Wheat	2,900	2,924	2,803	2,700	3,000	2,600	3,000	3,190	3,800	4,400	4,100	4,260	3,700	4,546	4,600	4,700	5,500	6,000	5,500
Barley	950	809	802	765	740	718	935	1,080	1,035	1,160	1,140	1,083	900	1,009	923	863	1,400	1,500	1,230
Rice (paddy)	810	709	576	700	860	800	845	875	960	980	1,020	1,060	1,050	1,200	1,334	1,313	1,500	1,600	1,400
Maize	-	-	-	-	-	-	-	-	-	-	-	-	-	20	31	50	65	75	45
Seed cotton	265	335	376	304	402	389	488	371	378	545	520	502	459	600	615	715	470	510	535
Sugar-beet	706	707	810	860	1,191	1,028	1,411	2,280	2,830	3,410	3,480	3,860	3,990	3,918	4,240	4,300	4,670	5,200	4,150
Sugar-cane	0	41	179	202	248	292	392	383	430	450	530	540	594	700	1,050	1,100	1,100	800	1,000
Tea (green)	29	39	44	48	50	42	50	59	68	81	76	79	64	88	93	96	80	88	116
Oilseeds	+	+	+	+	+	+	+	1	4	10	32	58	46	54	57	79	100	130	105
Tobacco	11	16	19	19	11	19	26	25	22	19	19	18	19	24	15	14	15	19	15
Pulses	110	73	85	91	102	101	113	126	140	158	205	204	196	176	200	210	225	230	187
Potatoes	320	330	335	360	370	380	410	418	420	420	437	416	400	420	481	533	550	570	697
Onions	128	133	139	147	149	156	167	166	178	187	267	244	250	258	307	305	330	340	392
Pistachios	-	-	-	-	-	-	-	-	-	-	-	-	18	28	31	42	26	40	27
Red meat	225	233	235	243	243	247	253	261	266	271	278	286	380	437	450	468	494	504	518
Poultry meat	16	16	17	24	21	22	24	26	28	31	45	52	55	110	110	117	115	134	163
Eggs	39	40	42	44	45	47	49	51	52	60	62	72	80	151	172	179	188	207	220
Milk	1,542	1,667	1,793	1,699	1,632	1,600	1,600	1,603	1,732	1,806	1,846	1,800	1,900	2,000	2,150	2,300	2,400	2,500	2,600

Source: Ministry of Agriculture and Rural Development. The figures are published in National Income of Iran 1338-1350 (1959/60-1971/2) & Annual Reports and Balance Sheets 1351-1357 (1972/3-1978/9) - Central Bank of Iran.

AREA AND PRODUCTION OF MAJOR CROPS IN IRAN
1339-1355
(1960/1-1976/7)

	Iranian year Gregorian year	1339 1960/1	1345 1966/7	1346 1967/8	1347 1968/9	1348 1969/70	1349 1970/1	1350 1971/2	1351 1972/3	1352 1973/4	1353 1974/5	1354 1975/6	1355 1976/7
Production ('000 Tons)	Wheat	2,924	-	-	3,861	-	4,262	3,612	4,398	4,546	2,886[1]	-	-
	Barley	809	-	-	962	-	1,083	851	1,227	1,158	751	-	-
	Rice (paddy)	709	-	-	1,172	-	1,350	877	1,008	937	826	-	-
	Other cereals	40	-	-	-	-	-	39	55	-	48	-	-
	Pulses	73	-	-	-	-	-	102	144	197[2]	186	-	-
	Jaliz plants[3]	419	-	-	-	-	-	1,002	1,410	-	1,218	-	-
	Potatoes	98	-	-	-	-	-	158	400	503	354	-	-
	Onions	-	-	-	-	-	-	109	139	205	136	-	-
	Tomatoes	-	-	-	-	-	-	130	126	285	272	-	-
	Other vegetables	195	-	-	-	-	-	198	-	-	492	-	-
	Lucern and sainfoin (dry)	219	-	-	-	-	-	834	1,155	1,133	1,496	-	-
	Clover (dry)	-	-	-	-	-	-	196	184	168	145	-	-
	Other fodder plants (dry)	125	-	-	-	-	-	226	-	-	600	-	-
	Sugar-beet	707	2,282	2,841	3,412	3,484	3,872	3,772	3,639	4,086	3,749	4,597	5,272
	Sugar-cane	-	382	433	453	528	522	578	831	1,075	1,105	-	821
	Seed cotton	328	375	378	545	517	513	466	440	560	648	716	426
	Tobacco plants	16	20	22	19	18	17	16	15	17	15	14	18
	Oilseeds	8	-	-	-	-	-	54	67	68	71	-	-
Area ('000 ha)	Wheat	4,012	-	-	4,806	-	5,327	5,565	5,469	6,325	5,973	-	-
	Barley	1,193	-	-	1,062	-	1,385	1,446	1,519	1,656	1,404	-	-
	Rice (paddy)	329	-	-	318	-	484	344	377	338	353	-	-
	Other cereals	45	-	-	-	-	-	38	57	36	48	-	-
	Pulses	132	-	-	-	-	-	210	220	423	479	-	-
	Jaliz plants[3]	21	-	-	-	-	-	108	170	255	226	-	-
	Potatoes	130	-	-	-	-	-	22	40	71	65	-	-
	Onions	-	-	-	-	-	-	11	10	21	12	-	-
	Tomatoes	-	-	-	-	-	-	14	11	28	21	-	-
	Other vegetables	26	-	-	-	-	-	19	25	31	33	-	-
	Lucern and sainfoin (dry)	79	-	-	-	-	-	278	303	285	383	-	-
	Clover (dry)	-	-	-	-	-	-	38	44	51	41	-	-
	Other fodder plants (dry)	55	-	-	-	-	-	144	213	224	379	-	-
	Sugar-beet	47	112	132	148	153	169	150	146	166	159	189	198
	Sugar-cane	-	2	4	4	4	4	5	7	9	9	-	-
	Seed cotton	313	340	300	340	380	320	307	309	332	380	290	295
	Tobacco plants	28	19	20	17	15	14	19	21	16	21	14	-
	Oilseeds	52	-	-	-	-	-	76	85	121	115	-	-

(1) In this year the Government decided to distribute some imported wheat among the farmers whose wheat fields had been damaged by drought, therefore, in most cases the reported production figures were less than the real amounts.

(2) Only peas and beans.

(3) Jaliz is a special method of cultivation which is used for melons, cucumbers, marrows and similars.

Sources: Statistical Yearbooks 1355 & 1356 (1976/7 & 1977/8) - Statistical Centre of Iran.

Table 82

CROP PRODUCTION IN IRAN
1352
(1973/4)

Crops	Irrigated			Unirrigated			Total		
	Area (ha)	Production (Ton)	Yield (kg/ha)	Area (ha)	Production (Ton)	Yield (kg/ha)	Area (ha)	Production (Ton)	Yield (kg/ha)
Wheat	1,571,939	2,288,677	1,455	4,753,094	2,257,255	474	6,325,033	4,545,933	718
Barley	345,361	499,068	1,445	1,310,531	658,741	502	1,655,892	1,157,810	699
Rice (Paddy)	338,115	936,879	2,770	0	0	0	338,115	936,879	2,770
Other cereals	18,454	-	-	17,398	-	-	35,852	-	-
Beans (dry)	35,929	44,421	1,236	3,283	3,662	1,115	39,213	48,083	1,226
Peas (dry)	56,989	56,404	989	235,950	92,730	393	292,940	149,134	509
Other pulses (dry)	35,451	-	-	55,002	-	-	90,454	-	-
Sunflower seed	34,499	30,207	875	54,367	27,961	514	88,866	58,168	654
Soybeans	1,629	2,562	1,572	4,460	7,102	1,592	6,090	9,664	1,586
Other oilseeds	15,704	-	-	10,000	-	-	25,704	-	-
Seed cotton	226,870	450,207	1,984	103,426	109,420	1,057	330,296	559,628	1,694
Other fibre plants	62	-	-	1,714	-	-	1,776	-	-
Sugar-beet	166,397	4,086,164	24,556	0	0	0	166,397	4,086,164	24,556
Tobacco	8,509	7,630	896	5,797	6,882	1,187	14,307	14,512	1,014
Hookah tobacco	2,300	2,312	1,005	0	0	0	2,300	2,312	1,005
Jaliz plants(1)	131,849	-	-	122,797	-	-	254,647	-	-
Potatoes	68,530	494,799	7,220	2,530	8,236	3,255	71,060	503,035	7,078
Onions	18,592	195,461	10,512	2,649	9,638	3,637	21,242	205,099	9,655
Tomatoes	25,062	268,697	10,720	2,752	16,010	5,816	27,815	284,708	10,235
Other vegetables	26,518	-	-	4,885	-	-	31,404	-	-
Lucern & sainfoin (dry)	268,723	1,100,931	4,096	16,212	32,343	1,994	284,936	1,133,275	3,977
Clover (dry)	49,583	163,972	3,307	1,508	4,197	2,783	51,091	168,170	3,291
Other fodder plants	88,554	-	-	135,090	-	-	223,644	-	-
Other annual crops	35,956	-	-	20,436	-	-	56,392	-	-
Fallow lands	2,060,733	-	-	4,132,052	-	-	6,192,785	-	-
Tea	286	1,312	4,581	26,531	59,952	2,259	26,817	61,265	2,284
Citrus fruits	24,417	-	-	15,782	-	-	40,200	-	-
Grapes	137,440	545,698	3,970	55,449	44,343	799	192,889	590,042	3,058
Pistachios	46,217	18,038	390	131	17	131	46,349	18,055	389
Dates	75,875	147,840	1,948	27,475	10,486	381	103,350	158,327	1,531
Almonds	32,610	21,831	669	16,591	1,991	120	49,202	23,822	484
Olives	1,390	2,289	1,646	3	1	408	1,394	2,291	1,643
Other fruit-bearing trees	187,739	-	-	38,140	-	-	225,880	-	-
Non-fruit-bearing trees	122,849	-	-	40,680	-	-	163,529	-	-
Total	6,099,431	-	-	11,194,206	-	-	17,293,638	-	-

(1) See footnote (3) in table 81.
Yields have been calculated before rounding of the production and area figures.

Source: Agricultural Census of 1352 (1973/4) - Statistical Centre of Iran.

Table 83

CROP PRODUCTION IN IRAN
1353
(1974/5)

Crops	Irrigated			Unirrigated			Total		
	Area (ha)	Production (Ton)	Yield (kg/ha)	Area (ha)	Production (Ton)	Yield (kg/ha)	Area (ha)	Production (Ton)	Yield (kg/ha)
Cereals	2,316,282	-	-	5,461,810	-	-	7,778,092	-	-
Wheat	1,565,355	1,794,083	1,146	4,407,917	1,092,392	247	5,973,272	2,886,475[1]	483
Barley	366,208	432,012	1,180	1,307,522	319,425	308	1,403,730	751,437	535
Rice (paddy)	353,340	825,929	2,337	0	0	0	353,340	825,929	2,337
Others	31,379	41,002	1,307	16,371	6,963	425	47,750	47,965	1,004
Pulses (dry)	143,774	-	-	334,977	-	-	478,751	-	-
Peas	70,771	41,634	588	277,143	58,586	211	347,914	100,220	288
Beans	40,449	43,890	1,085	3,135	4,777	1,524	43,584	48,667	1,117
Others	32,554	22,982	706	54,699	14,045	257	87,253	37,027	424
Fibre plants	276,950	-	-	103,995	-	-	380,945	-	-
Seed cotton	276,942	539,231	1,053	103,374	108,876	1,947	380,316	648,108	1,704
Others	8	6	788	621	494	795	629	500	795
Sugar plants	168,230	-	-	0	0	0	168,230	-	-
Sugar-beet	158,846	3,748,563	23,599	0	0	0	158,846	3,748,563	23,599
Sugar-cane	9,384	1,097,436	116,948	0	0	0	9,384	1,097,436	116,948
Tobacco plants	14,982	-	-	5,985	-	-	20,967	-	-
Tobacco	11,559	10,714	927	5,919	2,198	371	17,478	12,912	739
Hookah tobacco	3,423	2,431	710	66	25	373	3,489	2,456	704
Oilseeds	46,083	-	-	69,344	-	-	115,427	-	-
Sunflower seed	28,894	19,488	674	56,039	22,183	396	84,933	41,670	490
Soybeans	17,189	13,165	766	13,305	16,426	1,235	17,270	22,455	1,300
Others							13,211	7,136	1,000
Jaliz plants[2][3]	114,432	1,019,939	8,913	111,979	198,147	1,770	226,411	1,218,087	5,380
Kharbozeh	-	-	-	-	-	-	51,381	279,373	5,437
Watermelons	-	-	-	-	-	-	144,705	630,377	4,356
Cantelopes & others	-	-	-	-	-	-	8,273	98,277	11,879
Cucumbers	-	-	-	-	-	-	18,571	171,845	9,253
Marrows	-	-	-	-	-	-	3,417	38,212	11,183
Others	-	-	-	-	-	-	64	3	47
Vegetables	121,045	-	-	10,066	-	-	131,111	-	-
Potatoes	61,871	349,617	5,650	2,759	4,863	1,763	64,630	354,480	5,484
Onions	10,999	124,351	11,306	1,500	11,748	7,832	12,499	136,099	10,888
Tomatoes	20,047	265,599	13,249	1,070	6,701	6,263	21,117	272,301	12,894
Aubergines	-	-	-	-	-	-	7,338	85,260	11,618
Garlics	-	-	-	-	-	-	1,135	4,467	3,935
Green peas & broad beans	-	-	-	-	-	-	4,085	7,595	1,859
Green beans	-	-	-	-	-	-	1,944	4,507	2,318
Carrots, raddishes, turnips, etc.	-	-	-	-	-	-	6,886	104,122	15,120
Cabbages, celerys, etc.	-	-	-	-	-	-	865	15,355	17,751
Pepper	-	-	-	-	-	-	431	3,051	7,078
Leeks, cresses, etc.	-	-	-	-	-	-	2,986	33,095	11,083
Parsley, spinach, etc.	-	-	-	-	-	-	2,414	23,919	9,908
Others	-	-	-	-	-	-	4,697	-	-
Spices, herbs & colorings	24,183	-	-	4,587	-	-	34,551	-	-
Saffron	2,446	8	3	0	0	0	2,446	8	3
Caraway	21,737	7,194	331	10,368	1,349	130	27,454	4,921	179
Others							4,651	3,623	779
Fodder plants (dry)	472,746	2,107,129	4,457	147,081	133,884	910	619,827	2,241,014	3,616
Lucern & sainfoin	-	-	-	-	-	-	382,579	1,496,002	3,910
Clover	-	-	-	-	-	-	40,819	145,495	8,576
Others	-	-	-	-	-	-	196,389	559,516	3,053
Trees									
Stone fruits	-	-	-	-	-	-	-	131,197	-
Pip fruits	-	-	-	-	-	-	-	192,958	-
Citrus fruits	-	-	-	-	-	-	-	155,564	-
Figs	-	-	-	-	-	-	-	14,060	-
Vines	-	-	-	-	-	-	-	572,962	-
Pomegranates	-	-	-	-	-	-	-	140,556	-
Pistachios	-	-	-	-	-	-	-	31,661	-
Almonds	-	-	-	-	-	-	-	18,197	-
Walnuts	-	-	-	-	-	-	-	21,744	-
Dates	-	-	-	-	-	-	-	91,284	-
Olives	-	-	-	-	-	-	-	1,051	-
Tea	-	-	-	-	-	-	-	33,492	-
Mulberries	-	-	-	-	-	-	-	16,037	-

(1) See footnote (1) in table 81.
(2) See footnote (3) in table 81.
(3) A type of melon.
Yields have been calculated before rounding of the production and area figures.

Source: Agricultural Sample Census of 1353 (1974/5) - Statistical Centre of Iran.

above-mentioned sets were very substantial. For example, the per caput consumption of milled rice in 1352 (1973/4) in Iran, not considering imports[1] nor change in stocks[2], was 19.9 kilogrammes according to the agricultural census of that year, but 28.3 kilogrammes according to the Ministry of Agriculture and Rural Development's figures.

Although some studies on the marketing of the agricultural commodities in Iran have been undertaken, there was not much quantitative information available in this field.

7-2 Value Added

During the 1338-1356 (1959/60-1977/8) period the value added in agriculture in Iran increased at the average annual rates of 3.7 percent in real terms and 10.1 percent at current prices. The fluctuations in these rates through the years were mainly due to the state of weather[3]. It was empirically believed that there were 2-4 drought years in every decade in Iran.

In the above-mentioned period the value added of farming in real terms grew by an average annual rate of 3.6 percent but its share in the total value added in agriculture decreased from 63.2 to 61.8 percent. The growth of the value added of farming was mainly

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(1) Six thousand tons net import or 0.2 kilogramme per head of population.

(2) There is no figure available.

(3) See: Annual Reports and Balance Sheets, 1348-1350 (1969/70-1971/2) - Agricultural Development Bank of Iran. Also compare Tables 14 and 84.

achieved by the increase of cultivation.[1] The value added of animal husbandry increased on average by 3.6 percent in real terms during 1338-1356 (1959/60-1977/8) period but its share in the total value added in agriculture slightly reduced from 35.4 to 34.8 percent. The increase of the value added in animal husbandry mainly resulted from the growth of industrial poultry units and modern dairy farms and also, to a certain extent, from the integration of animal husbandry and farming in some agricultural units.

Although in later years of the period the rate of growth of forestry, due to the establishment of some modern projects, was improving, at the end of the period, forestry, as well as fishery, was still extremely underdeveloped and the total share of these two sub-sectors in the total value added in agriculture in 1356 (1977/8) only amounted to 3 percent (Table 84).

7-3 Commodity Production

The general economic situation together with the agricultural policies of the Government were the deciding elements in the patterns and trends of agricultural production in Iran. The type of crops and other related factors of production in the subsistence farming units were determined by the needs and resources of the farmers' households, but the commercial farming units were responsive to the circumstances imposed on them by the external events and the government policies. The most important and far reaching of these was the interference of the Government in price setting of some agricultural commodities

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(1) Compare Tables 44, 48 and 84.

Table 84

VALUE ADDED IN AGRICULTURE IN IRAN
1338-1356
(1959/60-1977/8)

		Iranian year	1338	1339	1340	1341	1342	1343	1344	1345	1346	1347	1348	1349	1350	1351	1352	1353	1354	1355	1356
		Gregorian year	1959/60	1960/1	1961/2	1962/3	1963/4	1964/5	1965/6	1966/7	1967/8	1968/9	1969/70	1970/1	1971/2	1972/3	1973/4	1974/5	1975/6	1976/7	1977/8
Value added (10^9 Rls.)	At constant prices of 1353	Farming	110.8	109.9	108.5	111.3	118.9	119.2	134.0	140.5	153.7	164.3	170.2	180.2	169.7	178.6	187.0	197.1	208.1	220.4	209.6
		Animal husbandry	62.2	65.8	68.9	68.3	64.2	66.5	67.1	67.6	71.6	77.1	78.7	80.3	82.7	85.4	90.7	97.2	106.4	111.7	118.1
		Forestry	1.9	2.4	2.3	1.8	1.4	2.7	2.3	2.5	1.6	3.2	2.9	2.7	2.7	5.4	6.8	7.1	7.8	7.6	9.0
		Fishery	0.5	0.8	0.8	1.0	1.0	1.0	1.0	1.0	1.3	1.5	1.5	1.5	1.8	1.6	2.0	1.9	1.7	2.0	2.3
		Total	175.4	178.9	180.5	182.4	185.5	189.4	204.4	211.6	228.2	246.1	253.3	264.7	256.9	271.0	286.5	303.3	324.0	341.7	339.0
	At current prices	Farming	58.8	60.4	60.0	64.0	67.1	74.1	83.1	84.6	87.6	94.6	100.6	113.7	120.9	135.6	150.2	197.1	209.1	277.3	311.7
		Animal husbandry	25.5	29.1	31.4	31.7	30.2	34.7	35.4	35.5	39.2	42.4	44.7	44.3	49.1	62.1	77.3	97.2	115.1	138.2	158.7
		Forestry	0.9	1.1	1.0	0.8	0.7	1.3	1.0	1.2	0.9	1.8	1.6	1.6	1.6	3.1	5.4	7.1	7.9	8.3	11.2
		Fishery	0.2	0.3	0.3	0.4	0.4	0.5	0.5	0.4	0.7	0.8	0.9	1.0	1.1	1.0	1.5	1.9	1.8	2.5	3.4
		Total	85.4	90.9	92.7	96.9	98.4	110.6	120.0	121.7	128.4	139.6	147.8	160.6	172.7	201.8	234.4	303.3	333.9	426.3	485.0
Distribution (%)	At constant prices of 1353	Farming	63.2	61.4	60.1	61.0	64.1	63.0	65.6	66.4	67.3	66.8	67.2	68.1	66.1	65.9	65.3	65.0	64.2	64.5	61.8
		Animal husbandry	35.4	36.8	38.2	37.4	34.6	35.1	32.8	31.9	31.4	31.3	31.1	30.3	32.2	31.5	31.6	32.1	32.9	32.7	34.8
		Forestry	1.1	1.3	1.3	1.0	0.8	1.4	1.1	1.2	0.7	1.3	1.1	1.0	1.0	2.0	2.4	2.3	2.4	2.2	2.7
		Fishery	0.3	0.5	0.4	0.6	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.6	0.7	0.6	0.5	0.6	0.7
		Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	At current prices	Farming	68.8	66.5	64.7	66.1	68.2	67.0	69.3	69.5	68.2	67.7	68.1	70.8	70.0	67.2	64.1	65.0	62.6	65.1	64.3
		Animal husbandry	29.9	32.0	33.9	32.7	30.7	31.4	29.5	29.2	30.5	30.4	30.2	27.6	28.4	30.8	33.0	32.1	34.5	32.4	32.7
		Forestry	1.1	1.2	1.1	0.8	0.7	1.2	0.8	1.0	0.7	1.3	1.1	1.0	0.9	1.5	2.3	2.3	2.4	1.9	2.3
		Fishery	0.2	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.6	0.6	0.6	0.6	0.7	0.5	0.6	0.6	0.5	0.6	0.7
		Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Indices	At constant prices of 1353	Farming	100.0	99.2	97.9	100.5	107.3	107.6	120.9	126.8	138.7	148.3	153.6	162.6	153.2	161.2	168.8	177.9	187.8	198.9	189.2
		Animal husbandry	100.0	105.8	110.8	109.8	103.2	106.9	107.9	108.7	115.1	124.0	126.5	129.1	133.0	137.3	145.8	156.3	171.1	179.6	189.9
		Forestry	100.0	126.3	121.1	94.7	-73.7	142.1	121.1	131.6	84.2	168.2	152.6	142.1	142.1	284.2	357.9	373.7	410.5	400.0	473.7
		Fishery	100.0	160.0	160.0	200.0	200.0	200.0	200.0	200.0	260.0	300.0	300.0	300.0	360.0	320.0	400.0	380.0	340.0	400.0	460.0
		Total	100.0	102.0	102.9	104.0	105.8	108.0	116.5	120.6	130.1	140.3	144.4	150.9	146.5	154.5	163.3	172.9	184.7	194.8	193.3
	At current prices	Farming	100.0	102.7	102.0	108.8	114.1	126.0	141.3	143.9	149.0	160.9	171.1	193.4	205.6	230.6	255.4	335.2	355.6	471.6	530.1
		Animal husbandry	100.0	114.1	123.1	124.3	118.4	136.1	138.8	139.2	153.7	166.3	175.3	173.7	192.5	243.5	303.1	381.2	451.4	542.0	622.4
		Forestry	100.0	122.2	111.1	88.9	77.8	144.4	111.1	133.3	100.0	200.0	177.8	177.8	177.8	344.4	600.0	788.9	877.8	922.2	1244.4
		Fishery	100.0	150.0	150.0	200.0	200.0	250.0	250.0	200.0	350.0	400.0	450.0	500.0	550.0	500.0	750.0	950.0	900.0	1250.0	1700.0
		Total	100.0	106.4	108.5	113.5	115.2	129.5	140.5	142.5	150.4	163.5	173.1	188.1	202.2	236.3	274.5	355.2	391.0	499.2	567.9
Growth rates (%)	At constant prices of 1353	Farming	-	-0.8	-1.3	2.6	6.8	0.3	12.4	4.9	9.4	6.9	3.6	5.9	-5.8	5.2	4.7	5.4	5.6	5.9	-4.9
		Animal husbandry	-	5.8	4.7	-0.9	-6.0	3.6	0.9	0.7	5.9	7.7	2.1	2.0	3.0	3.3	6.2	7.2	9.5	5.0	5.7
		Forestry	-	26.3	-4.2	-21.7	-22.2	92.9	-14.8	8.7	-36.0	100.0	-9.4	-6.9	0.0	100.0	25.9	4.4	9.9	-2.6	18.4
		Fishery	-	60.0	0.0	25.0	0.0	0.0	0.0	0.0	30.0	15.4	0.0	0.0	20.0	-11.1	25.0	-5.0	-10.5	17.6	15.0
		Total	-	2.0	0.9	1.1	1.7	2.1	7.9	3.5	7.8	7.8	2.9	4.5	-2.9	5.5	5.7	5.9	6.8	5.5	-0.8
	At current prices	Farming	-	2.7	-0.7	6.7	4.8	10.4	12.1	1.8	3.5	8.0	6.3	13.0	6.3	12.2	10.8	31.2	6.1	32.6	12.4
		Animal husbandry	-	14.1	7.9	1.0	-4.7	14.9	2.0	0.3	10.4	8.2	5.4	-0.9	10.8	26.5	24.5	25.7	18.4	20.1	14.8
		Forestry	-	22.2	-9.1	-20.0	-12.5	85.7	-23.1	20.0	-25.0	100.0	-11.1	0.0	0.0	93.8	74.2	31.5	11.3	5.1	34.9
		Fishery	-	50.0	0.0	33.3	0.0	25.0	0.0	-20.0	75.0	14.3	12.5	11.1	10.0	-9.1	50.0	26.7	-5.3	38.9	36.0
		Total	-	6.4	2.0	4.5	1.5	12.4	8.5	1.4	5.5	8.7	5.9	8.7	7.5	16.9	16.2	29.4	10.1	27.7	13.8

Source: See section 2-1 .

either to keep the consumer prices down or to boost production. The former drove the commercial units, when and where possible, to production of those items, like fruit and vegetables, the prices of which were not under control; and the latter boosted the production of some commodities, like milk, in a superficial way without laying the real foundation for increasing production. Some important points about the production and marketing of the major commodities in Iranian agriculture are discussed below.

7-3-1 Wheat

Wheat is the major staple food item and by far the most important agricultural commodity in Iran.[1] The area devoted to cultivation, according to the agricultural census of 1352 (1973/4), accounted for 38.9 percent of the irrigated,[2] 67.3 percent of the unirrigated[2] and 57 percent of the total area under-cultivation[2] in the country. The intervention of the Government in the wheat market was relatively extensive. Apart from being the sole importer of wheat it had commited itself to buy at a certain price all the produce that was supplied to it by farmers and also to provide all the traditional bakeries with flour at a price below the purchase price of wheat. The official stocks of wheat were also under the control of the Government (Table 85).

The government interference kept the price of wheat low and its production in the commercial farming units was gradually confined

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(1) PARVIZI, A. & RASEKH, H., Economic Study of Wheat in Iran - Agricultural Development Bank of Iran, Economic Report No. 10, Azar 1350 (December 1971).

(2) Excluding fallow lands.

Table 85

STOCK OF WHEAT UNDER GOVERNMENT CONTROL IN IRAN
1345-1356
(1966/7-1977/8)

(Tons)

Iranian year	Gregorian year	Stock at the beginning of the year	Change
1345	1966/7	89,004	143,457
1346	1967/8	232,461	136,660
1347	1968/9	369,121	-62,944
1348	1969/70	306,177	-96,538
1349	1970/1	209,639	-189,919
1350	1971/2	19,720	42,070
1351	1972/3	61,790	82,121
1352	1973/4	143,911	-47,291
1353	1974/5	96,620	111,919
1354	1975/6	208,539	227,695
1355	1976/7	436,234	-24,760
1356	1977/8	411,474	-

Sources: Statistical Yearbooks, 1355 & 1356 (1976/7 & 1977/8) - Statistical Centre of Iran.

either to those unirrigated lands that were not suitable for any crop other than wheat or barley, or where crop-rotation dictated its use.

7-3-2 Rice

Rice is the second important staple food item in Iran and its production is mainly concentrated in the two provinces of Gilan (44 percent) and Mazandaran (40.9 percent) on the Caspian littoral. There are numerous varieties of rice in Iran, each of them with a limited production and this prevented the establishment of modern high capacity rice-mills in the country. However, due to the multiplicity of varieties the production is resistant to those types of pests that usually attack large areas of a single variety production. The government incentives to persuade all the rice producers to cultivate a special and homogeneous variety were not effective. Most varieties of rice in Iran are of long-grain types and they are produced by first planting the seeds in the nurseries and then replanting the seedlings in the fields. This method of production is necessary to maintain the quality of long-grain types of rice which have lower yields per hectare than the short grain types.(1) The domestic production was marketed by private enterprise and due to its distinctive quality, the government imported and subsidized rice could not compete with it. Although the price range of the domestic production was 1.5-2.5 times the price of the imported rice, the

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(1) RASEKH, H., Production and Consumption of Rice in Iran - Agricultural Development Bank of Iran, Economic Report No. 5, Farvardin 1350 (April 1971).

latter was only purchased after the exhaustion of the former or by the very low income households.

7-3-3 Cotton[1]

Cotton has been the second important non-oil exporting item[2] of Iran which has long been a cotton exporting country.[3] The production of this commodity was very profitable and its domestic price, before the intrusion of the Government, closely followed international trend.[4] In 1352 (1973/4) the Government started to apply some pressure by taking action, such as withdrawing some export facilities, to force the farmers to reduce the area under cultivation of cotton and replace it by sugar-beet or wheat, but these measures did not affect the rate of growth of production until 1354 (1975/6) when more drastic measures to reduce production were introduced. These included giving priority to domestic buyers and also limiting the volume of export by a quota system.

7-3-4 Sugar-beet

Until 1336 (1957/8) the production of sugar in Iran was a

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(1) Cotton has been discussed in this section because it was very important in the Iranian agriculture, the circumstances surrounding its production and export were different from those of the other agricultural commodities, and also its main by-product, cotton seed, was being used in production of edible fixed oil.

(2) After carpet.

(3) Econometric Model of Cotton in Iran - Central Bank of Iran, Azar 1354 (December 1975).

(4) RASEKH, H., Economic Study of Cotton in Iran - Agricultural Development Bank of Iran, Economic Report No. 6, Ordibehesht 1350 (May 1971).

monopoly of the Government, but in that year the exclusion of the private sector from this field was lifted and in 1338 (1959/60) the first private sugar factory started to work.(1)

After the White Revolution (according to one of its articles) the sale of the state-owned sugar factories began and gradually most factories were transferred to the private sector, although some of them remained unsold. These were the factories which had been installed for political reasons, like promoting the settlement of some nomadic tribes, in the areas unsuitable for production of sugar-beet. Therefore, due to the lack of raw material the number of work-days of these factories were too low to be attractive to the private sector.

At the beginning, the promotion of production of sugar-beet by the private sugar companies was implemented by the exploitation of the aftermath of land reform. The policy, which later was also adopted by the private edible oil companies to promote the production of oilseeds, was first to provide a loan for farmers who were ready to produce sugar beet and then try to keep them in permanent debt, thus forcing them to continue the production of sugar-beet. In the absence of landlords, who were the traditional sources of loans, most new landowners needed some financial help. The Government could not provide this and the banking system could not help because all the reform lands were mortgaged to the Government. Gradually, some farmers were able to break the vicious circle and

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(1) PARVIZI, A. & RASEKH, H., Economic Study of Sugar Industry in Iran - Agricultural Development Bank of Iran, Economic Report No. 9, Mordad 1350 (August 1971).

clear their debts and subsequently they were able to ask for better prices for their crops. This new situation led to a fierce competition among the sugar companies to secure the necessary raw materials for their factories. At this time it was common for agricultural units near a sugar factory to supply their produce to a distant factory which was paying a better price than the one nearby.

The Government, which never relinquished its monopoly on import of sugar or its control on setting the price of it, was collecting a high profit on the imported sugar and a high tax on domestic production, but in 1352 (1973/4) it decided to interfere in the sugar-beet market by introducing a unified price for all the factories in the country. This policy ended the competition among the sugar factories and deeply damaged the market. Consequently, after two years sugar turned into a subsidized commodity at a price much higher than the international price.

Until the end of 1351 (1972/3) the private companies were allowed to sell their sugar and lump sugar at Rls. 23 and Rls. 25 per kilogramme and pay the Government the respective taxes of Rls. 6.25 and Rls. 7.25 per kilogramme. In 1352 (1973/4) together with the introduction of the unified price for sugar-beet, the Government increased the prices of sugar and lump sugar to Rls. 24 and Rls. 26 per kilogramme and reduced their respective taxes to Rls. 4.75 and Rls. 5.75 per kilogramme. In 1353 (1974/5) the Government started to buy the output of the sugar factories directly and on the premises of the companies, thus the transport costs of sugar and lump sugar

to markets were transferred to the Government. In addition, the respective prices of these products were increased to Rls. 25.5 and Rls. 30.5 per kilogramme and their taxes were abolished. The payment of subsidy on sugar and lump sugar, which began in that year, has increased ever since.

In 1355 (1976/7) the export of sugar-beet pulp was banned to force the factories to sell their pulp to domestic dairy farms at a price lower than the export price, but because the volume of the production of sugar-beet pulp at that time was more than its domestic demand, that decision not only deprived some factories of a part of their revenue but also imposed some costs on them to dispose of the unsold pulp. Later the Government had to compensate both for the loss of revenue and the extra cost.

Throughout the years the expansion of the area under cultivation of sugar-beet has been achieved at the expense of wheat. In other words, the production of sugar-beet has gradually been expanded on the lands which had traditionally been some of the best irrigated lands under cultivation of wheat.

7-3-5 Red Meat

For many years the number of livestock grazing on the pastures of Iran has been far greater than the capacity of those pastures.(1)

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(1) KHATIBI, N., Preliminary Report on Pastures for the Fourth National Development Plan - Plan and Budget Organization (of Iran), 1346 (1967/8).
AND
PARVIZI, A., Economic Study of Red Meat in Iran and Tehran - Agricultural Development Bank of Iran, Economic Report No. 4, Aban 1349 (November 1970).

This overgrazing has resulted in rapid deterioration of pastures which in turn caused more overgrazing and also increased the danger of expansion of deserts. It has been suggested that in 1354 (1975/6) the rate of grazing was three times the safe capacity of pastures in Iran.(1) It has also been suggested that if all the pastures were used at their safe capacity level and all the other possible resources of the country were allocated to production of animal products, Iran would not be self-sufficient in those commodities, but in such a case almost the entire amount of staple food items together with high proportions of other agricultural products required by the country, would have to be imported.(2)

The total number of livestock in Iran is not known. In the agricultural census of 1352 (1973/4) and all the other agricultural sample censuses only the livestock kept in the settlements were enumerated but no attempt has been made to count the livestock of the nomadic tribes. However, some experts believed the share of the livestock of nomadic tribes in the total population of livestock in Iran to be 40-50 percent (Table 86).(3)(3)

The main part of domestic production of red meat in Iran was being produced by farmers and nomadic tribes using the nationalized

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(1) National Cropping Plan, a report to the Ministry of Agriculture and Natural Resources (of Iran), by Bookers Agricultural and Technical Services Limited & Hunting Technical Services Limited, Shahrivar 1354 (August 1975).

(2) Animal Protein Development Programme, a report to the Ministry of Agriculture and Natural Resources (of Iran), by Food and Machinery Corporation International, March 1975.

(3) Excluding buffalos, pigs and poultry.

Table 86

NUMBER OF LIVESTOCK IN SETTLEMENTS IN IRAN
1350-1353
(1971/2-1974/5)

('000 heads)

Iranian year	Gregorian year	Sheep	Goats	Cattle	Buffalos	Horses & mules	Asses	Camels	Pigs	Poultry
1350	1971/2	24,293	13,950	5,516	179	417	2,023	110	161	14,178
1351	1972/3	25,050	13,460	5,610	240	-	-	-	-	18,130
1352	1973/4	27,819	14,192	5,291	220	472	1,961	115	43	-
1353	1974/5	28,771	14,289	5,324	236	532	2,142	101	-	26,225

Source: Statistical Yearbook, 1356 (1977/8) - Statistical Centre of Iran.

grazing lands and producing meat at a very low cost. Therefore, units using hand-feeding systems could not compete with the traditional producers or the subsidized government imported red meat. However, the integration of farming and animal husbandry grew popular in recent years mainly to graze the stubbles or use by-products of the agricultural units.

7-3-6 Milk

Until mid 1340's (1960's) more than 95 percent of the production of milk in Iran was being produced by the domestic breeds of cattle, sheep and goats and because most production centres were in remote parts of the country and far from consumption centres, almost all the produce was first turned into cheese and animal fat by traditional methods and then transported to markets. The level of sanitation in processing and transportation as well as the quality of products was very low.(1) Gradually, after the establishment of some pasteurizing plants in a number of large cities, some modern dairy farms using various high yielding foreign breeds of cattle were founded. By the end of that decade the size of the market had grown to a level where some investors began to consider the establishment of cattle breeding units. Expansion began accordingly on some units, but in early 1350's (1970's) the Government decided to accelerate this expansion by providing some subsidies. In 1351 (1972/3) the subsidization of the price of milk started; in 1352 (1973/4) the provision

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(1) PARVIZI, A., Economic Study of Milk and Milk Products in Iran and Tehran - Agricultural Development Bank of Iran, Economic Report No. 7, Bahman 1349 (February 1971).

of the government imported and subsidized concentrated feed items began; in 1353 (1974/5) the payment of transportation cost of high yielding foreign livestock commenced; and in 1354 (1975/6) the provision of a 100 percent loan, at 2 percent interest per annum, for this purpose started. One impact of subsidies on dairy farming in Iran was that they suppressed any incentive to invest in a breeding unit. Many new units were established to take advantage of the government subsidies, and they, together with the existing dairy farms which were mostly expanded for the same reason, increased the production of milk in Iran in the manner of industrial assembly plants. In other words, they imported some foreign cattle and fed them mainly with imported feed to produce milk.(1) Furthermore, the majority of these units employed foreign veterinary surgeons, due to the shortage of Iranian personnel, to manage their technical affairs. Subsequently, the build-up of an improved domestic stock that needed long-term investments, but for which there was no subsidy available was completely ignored and all these modern dairy farms remained dependent on foreign stocks.

7-3-7 Poultry Meat and Eggs

The establishment of poultry units in Iran began in early 1330's (1950's). Prior to that time, and for some years to come, it was commonplace for most rural, as well as many urban households, to

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(1) The Government organization responsible for the import and distribution of feed was the Pastures Development Fund (of Iran).

keep a few free-range fowls mainly to use their eggs and occasionally their meat. Poultry meat was considered a luxury because it was produced in small quantity, as a by-product and its price was higher than that of any kind of red meat. Almost all the early units were established as experimental units with minimum investments and using minimum facilities, but gradually the potentials of the poultry industry became known and its slow growth started. At that time the industry only comprised production stocks and all the units were importing either day-old-chicks or hatching-eggs to replace their production stocks. By early 1340's (1960's) the domestic market had reached the minimum size suitable for the operation of parent stock units and subsequently these units began to appear. Gradually the rate of growth of the industry increased and in 1348 (1969/70) the only grand parent stock unit was established. The poultry industry seemed to be set to grow into a complete and self-sufficient industry until 1350 (1971/2) when the Government started to interfere in the market first by price control and then by providing different subsidies on prices, imported feed items and transportation of stocks from abroad. In a year the production of poultry meat and eggs ascended by 100 and 90 percent respectively, but to achieve these increases not only all the firms which had gone out of the market due to their inefficiency came

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(1) PARVIZI, A., Economic Study of Poultry Meat and Eggs in Iran - Agricultural Development Bank of Iran, Economic Report No. 1, Esfand 1348 (March 1970).

(2) In a complete poultry industry there are two separate branches to produce layers and broilers. Every branch is composed of pedigree stock, grand parent stock, parent stock and production stock.

back into production, but also the grand parent stock unit and many parent stock units changed back to production stocks. As a result, instead of having a self-sufficient poultry industry the country again became almost totally dependent on foreign day-old-chicks and hatching-eggs.

7-3-8 Sea Products

Fishing in Iran was divided between two main areas, the Caspian Sea in the north and the Persian Gulf and the Oman Sea in the south. In recent years a few fish farms have been established inside the country but the Government did not give official permission to these farms, therefore, they were working under relatively difficult circumstances and their future was uncertain.

Fishing in the north was the monopoly of the Fishing Company of Iran which was a state-owned company attached to the Ministry of Agriculture and Rural Development. The capacity of that sea was relatively limited and there were some official agreements between Iran and the Soviet Union about the share of each country of the resources of the sea, the ways of use of those resources and all other related matters. The Fishing Company of Iran was utilizing the resources of the Caspian Sea to their full capacity[1] and it was also running some research and breeding centres to hatch fish eggs and return them to the sea. In the Caspian Sea along with the normal scaly fish, there is an important fishery for sturgeon and similar

(1) Iran's share.

non-scaly fish.[1] The domestic demand for the scaly group of fish was very high and there was a black market for this group, the price range of which was 10-15 times the official price, but since 1350/1 (1972)[2] the company has been exporting some of its scaly fish. In spite of heavy fines and penalties, including imprisonment, the difference between the official and the black market prices prompted some poaching amongst the local residents. The sturgeon is generally fished for its eggs as caviar, which is mostly exported. In recent years, however, the consumption of sturgeon flesh has been increasing in Iran (Table 87).

Fishing in the south of Iran was under the control of the Fishing Company of the South of Iran which was a state-owned company attached to the Ministry of War. Unlike the Caspian Sea, fishing in the waters of the south of Iran was extremely underdeveloped. In a study carried out in 1315-1316 (1926/7-1927/8) it was estimated that it would be possible to catch 150-200 thousand tons of fish per annum and also acquire many other products from those waters. However, it is generally believed that the fishing potential of the waters of the south of Iran was many times more than was estimated in that report.[3] The Fishing Company of the South of Iran, which itself did not have catching facilities, was selling fishing permits to private companies, but because of many accompanying

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(1) Only scaly fish is considered to be edible in Islam.

(2) See footnote (1) of Table 87.

(3) Statistical Yearbook, 1355 (1976/7) - Statistical Centre of Iran.

FISH CAUGHT FROM CASPIAN SEA BY IRAN
1344/5-1354/5
(1966-1976)

(Tons)

(1) Iranian year	Gregorian year	Scaly fish					Unscaly fish					Caviar				
		Caught	Sold			(2) Stock	Caught	Sold			(2) Stock	(3) Caught	Sold			(2) Stock
			Export	Domestic market	Total			Export	Domestic market	Total			Export	Domestic market	Total	
1344/5	1966	1,392	-	1,008	-	-	1,997	1,514	295	1,809	663	202	189	24	213	30
1345/6	1967	522	-	757	-	-	2,169	1,966	170	2,136	696	199	189	29	218	11
1346/7	1968	921	-	552	-	-	2,080	1,772	252	2,024	752	207	172	27	199	19
1347/8	1969	3,630	-	2,897	-	1,255	2,779	2,250	406	2,656	875	201	180	36	216	4
1348/9	1970	4,171	0	3,916	3,916	1,510	2,272	2,102	352	2,454	693	203	180	25	205	2
1349/50	1971	3,752	0	4,201	4,201	1,061	2,193	2,410	203	2,613	273	190	172	15	187	5
1350/1	1972	1,924	225	2,186	2,411	574	1,983	1,928	160	2,088	168	204	191	13	204	5
1351/2	1973	3,075	407	2,728	3,135	514	1,987	1,152	316	1,468	687	216	199	17	216	5
1352/3	1974	5,024	526	3,815	4,341	1,197	1,682	1,615	410	2,025	344	183	161	20	181	7
1353/4	1975	3,080	1,061	2,660	3,721	556	1,661	1,003	540	1,543	462	183	161	21	182	8
1354/5	1976	5,155	1,453	3,652	5,105	606	1,839	1,168	723	1,891	410	215	166	29	195	28

(1) There are 2 fishing seasons in a year in the Caspian Sea; the spring season, mostly for unscaly fish, starts in mid Bahman (beginning of February) and continues until the end of Khordad (mid June); and the autumn season, mainly for scaly fish, starts at the beginning of Mordad (mid July) and continues to the end of Mehr (mid October).

(2) At the end of the year.

(3) It is a by-product of unscaly fish.

Sources: Statistical Yearbooks, 1355 & 1356 (1976/7 & 1977/8) - Statistical Centre of Iran.

conditions few companies were ready to obtain those permits, thus the volume of catch of fish and prawn was very low (Table 88). Nevertheless, poaching was relatively common and it was believed by many observers that the official figures were showing only half the real amounts of catch.

7-3-9 Fruit and Vegetables

To establish orchards in Iran long-term investments were needed, but if the discounted rate of return was used as criterion it was not justifiable to invest in some types of fruit trees. These were the trees with long development periods like dates (15 years) and pistachios (8 years). However, because fruit prices were not under control, the number of fruit-bearing trees in Iran in recent years grew rapidly (Table 89).

One of the effects of price control and other government policies on the major crops in Iran was that they relatively stabilized the production and prices of vegetables. There had been sizable fluctuations in production and prices of vegetables due to the high price elasticity of production, but to escape the effects of the interference of the Government in price-setting of major crops, many farmers continued to produce vegetables even after some low-price years, and gradually those fluctuations began to disappear.

Because of the climatic characteristics of Iran it was possible to supply many fresh vegetables to market throughout the year, usually at prices lower than those of the processed or frozen

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(1) Including Jaliz plants. See footnote (3) of Table 81.

Table 88

FISH AND PRAWN CAUGHT IN THE SOUTH OF IRAN
1345-1355
(1966/7-1976/7)

Iranian year	Gregorian year	Fish	Prawn
1345	1966/7	1,029	4,107
1346	1967/8	1,389	4,682
1347	1968/9	1,227	4,507
1348	1969/70	647	1,628
1349	1970/1	938	1,689
1350	1971/2	1,132	1,729
1351	1972/3	3,059	1,707
1352	1973/4	2,619	2,610
1353	1974/5	5,760	1,807
1354	1975/6	4,144	3,159
1355	1976/7	8,279	4,040

Sources: Statistical Yearbooks, 1355 & 1356 (1976/7 & 1977/8) - Statistical Centre of Iran.

Table 89

NUMBER OF SOME FRUIT-BEARING TREES IN IRAN

('000)

Trees	1339 1960/1	1350 1971/2	1351 1972/3	1353 1974/5
Vines	-	127,445	162,900	156,961
Apples	8,343	17,716	29,250	-
Other pip fruits	2,164	4,026	6,880	-
Stone fruits	16,556	25,371	26,500	31,987
Citrus fruits	5,079	12,549	13,850	17,581
Pistachios	12,731	10,876	24,570	37,842
Almonds	14,278	8,539	9,750	11,081
Dates	10,520	14,480	17,420	
Walnuts	1,027	2,671 (1)	-	11,690
Figs, pomegrantes and mulberries	14,442	31,985 (2)	-	52,465

(1) Including hazelnut trees.

(2) Including persimmon trees.

Source: Statistical Yearbook, 1356 (1977/8) - Statistical Centre of Iran.

vegetables. Thus, the consumption of processed and frozen vegetables, as well as that of processed fruit, was scanty.

Prior to 1350's (1970's) the marketing of fruits and vegetables was the monopoly of a powerful and widespread network of wholesalers who were acting in many areas as green-buyers. They were the main beneficiaries of the sale of fruits and vegetables and several irresolute attempts of the Government to break their hold on the market were unsuccessful. However, in recent years due to the rapid growth of demand and supply, including imports, and also the establishment of many superstores and fruit markets the influence of the traditional wholesalers on the market was severly undermined.

7-4 Inputs and Machinery Use

The information available about the agricultural inputs and use of machinery in Iran is mainly concerned with the commercial farming units.

Techniques of production in the subsistence farming units in Iran are mostly traditional. They were producing their own composted manure and the seeds they needed were parts of their crop produce. Oxen were generally the draught animals, but sometimes instead of oxen horses, mules or human power were used. Animal and human manure were extensively applied to enrich the soil, although the former was also used as fuel. However, not all these characteristics were peculiar to the subsistence farming units.

For every agricultural input there was at least one government organization responsible, but none of these organizations were able to cover all the agricultural units or even all the commercial

farming units.

The Organization for Protection of Plants was attached to the Ministry of Agriculture and Rural Development and responsible for pest control in Iran. Apart from national emergencies that it had to deal with[1] without charging the farmers, the state-owned organization was also offering its services as a commercial pest control company. There were some private companies which were mostly operating in the agricultural centres of the north and the west of Iran and although their price range was 8-10 times more than that of the state-owned organization, because of their efficiency, they were preferred by commercial farmers.

The Chemical Organization attached to the Ministry of Agriculture and Rural Development and the Fertilizer Distribution Company a subsidiary of the National Iranian Petrochemical Company were responsible for the provision of fertilizer all over the country. Apart from a small amount of some special types, most fertilizers were being produced by various state-owned companies and supplied to the market at prices lower than their production costs. In addition to that general subsidy, a further subsidy of 50 percent on the market price was available through the "Impact Projects"[2]. In spite of these subsidies the amount of fertilizer used in agriculture in Iran was still low (Table 90). For example, if the total amount of fertilizer used in 1355 (1976/7) in Iran, 601 thousand tons, had

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(1) The subsistence farmers could not pay.

(2) See section 7-5.

Table 90

FERTILIZER USED IN IRAN
1345-1355
(1966/7-1976/7)

('000 Tons)

Iranian year	Gregorian year	Fertilizer
1345	1966/7	124
1346	1967/8	215
1347	1968/9	184
1348	1969/70	208
1349	1970/1	243
1350	1971/2	328
1351	1972/3	379
1352	1973/4	482
1353	1974/5	616
1354	1975/6	624
1355	1976/7	601

Sources: Statistical Yearbooks, 1355 & 1356 (1976/7 & 1977/8) - Statistical Centre of Iran.

been used to the recommended amount of the Wheat Impact Project, a minimum of 150 kilogrammes per hectare, the maximum under-cultivation area using fertilizer would have been 4 million hectares.(1)

The Agricultural Machinery Development Agency was attached to the Ministry of Agriculture and Rural Development and responsible for marketing the tractors manufactured or assembled by the Tractor Manufacturing Company of Iran which itself was a state-owned company attached to the Ministry of Industry and Mining. That company was manufacturing or assembling some of the outdated models of Fiat tractors under an agreement between Iran and Romania which herself had an agreement with the Italian company. The Agency was providing low interest loans, and also some repair services in a number of areas of the country, to promote the sale of those tractors as well as some other agricultural machinery (Table 91). Imports of the tractors similar in range to the domestic tractors had been banned, but there were some private companies importing tractors outside that range in addition to other agricultural machinery. In 1352 (1973/4) there were 31,673 tractors, 1,987 combine-harvesters and 21,270 tillers (rotovators) working in Iran,(2) but in 1353 (1974/5) these figures grew to 35,475, 2,472 and 25,918, respectively.(3)

Seeds used by many agricultural units in Iran were usually obtained from the crops produced by the units themselves, thus they

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(1) This was 63 percent of the under-cultivation area of wheat in Iran in 1352 (1973/4). See Table 82.

(2) Agricultural Census of 1352 (1973/4) - Statistical Centre of Iran.

(3) Agricultural Sample Census of 1353 (1974/5) - Statistical Centre of Iran.

Table 91

AGRICULTURAL MACHINERY SOLD IN IRAN BY
THE AGRICULTURAL MACHINERY DEVELOPMENT AGENCY
1351-1355
(1972/3-1976/7)

Iranian year Gregorian year	1351 1972/3	1352 1973/4	1353 1974/5	1354 1975/6	1355 1976/7
Tractors	5,787	4,781	7,561	9,038	6,626
Tillers	-	719	3,525	-	-
Ploughs	4,536	3,499	5,837	7,057	5,831
Disc harrows	911	1,258	1,829	1,603	1,088
Trailers	661	820	321	2,001	1,677
Bulldozer blades	236	445	437	780	532
Seeder	31	36	62	238	25
Fertilizer dispurser	90	67	130	90	43
Pesticide sprayer	1,155	154	248	1,401	108
Weed cutters	4	1	3	0	1

Source: Statistical Yearbook, 1356 (1977/8) - Statistical Centre of Iran.

were mainly unselected forms. However, there were other sources of supply available, namely private producers of seeds and saplings including those supplying directly to the market and those who were producing, under contract, for the Government. The first group was mostly composed of sapling producers, while the second group was mainly consisted of seed producers. There were also some private companies engaged in importing saplings and vegetable and flower seeds. The Institute for Improvement of Seed and Sapling, attached to the Ministry of Agriculture and Rural Development, produces a limited amount of a number of seeds and saplings and is also the main importer and distributor of these items in Iran (Table 92). Seeds and saplings are most suitable for an area when they are especially developed for that area with respect to the climatic characteristics, the type and peculiarities of soil and also the indigenous diseases and pests. The need of such research and development is more acute in a country like Iran with multifarious climatic and geologic characteristics which at the same time suffers from shortage of water, thus has to utilize her agricultural resources to their maximum potential. Apart from some sporadic and unrelated experiments, however, not much attention has been paid to this field and the state-owned institute, as well as the private agricultural units, was merely reproducing seeds and saplings which had been developed for other parts of the world.

7-5 Impact Projects

Impact Projects were initiated in mid 1340's (1960's) to increase the production of some agricultural commodities by providing

Table 92

SEEDS AND SAPLINGS DISTRIBUTED IN IRAN BY THE INSTITUTE FOR IMPROVEMENT OF SEED AND SAPLING
1345-1354
(1966/7-1975/6)

Iranian year	Gregorian year	Seeds (Tons)									Saplings ('000)	
		Wheat			Cotton			Vegetables	Potatoes	(1) Sugar-beets	Citrus	Others
		Pro-duced	Pur-chased	Distri-buted	Pro-duced	Pur-chased	Distri-buted					
1345	1966/7	1,630	7,625	7,625	263	7,200	1,700	39	200	3,229	66	251
1346	1967/8	1,550	5,600	5,600	166	2,400	2,000	67	70	3,421	56	300
1347	1968/9	1,593	6,500	6,500	219	2,571	2,567	61	321	4,585	45	290
1348	1969/70	1,400	4,500	-	70	2,781	2,505	70	277	4,913	26	622
1349	1970/1	1,700	11,089	12,789	101	3,597	3,398	97	198	4,950	60	739
1350	1971/2	1,901	31,540	32,980	105	8,176	3,121	35	178	5,039	31 (2)	848
1351	1972/3	1,800	37,000	34,000	130	10,113	9,327	24	170	4,923	42	970
1352	1973/4	1,500	34,000	35,500	117	11,061	11,178	-	184	4,950	60	887
1353	1974/5	1,800	70,000	64,620	149	13,000	11,000	67	123	4,393	140	1,100
1354	1975/6	1,700	66,310	58,000	775	8,542	9,517	45	28	4,892	246	-

(1) These are the amounts delivered to the sugar companies, therefore, every figure is for the use in the year after.
(2) Including olives, pomegranates and figs.

Source: Statistical Yearbook, 1356 (1977/8) - Statistical Centre of Iran.

subsidized seeds and fertilizers, short-term loans and some extension services for a number of agricultural units and using those units as model farms to demonstrate the effects of new technicques and inputs on the production of the chosen crops. The programme began with the Wheat Impact Project, but later it was extended to cover rice, maize, fodder plants, oilseeds, potatoes, citrus and grapes. In the case of grapes a medium-term loan for erection of wire fences was added to the list of incentives. The rate of subsidy for seeds and saplings was 80 percent of their value, while for fertilizers it was 50 percent of their market price. The loans varied in size and were provided through the Agricultural Co-operative Bank of Iran by the order of the Extension Organization which was attached to the Ministry of Agriculture and Rural Development and the main responsible body for the Impact Projects. Nevertheless, some other government agencies like the Cotton and Oilseed Organization were also involved in some of these projects.

From the start it was intended that the Impact Projects should be viewed by agricultural units as opportunities to take advantage of subsidies and loans, in order to attract them to enter into agreement with the government agencies. In practice, this aim was achieved, but the projects did not always make the impact that had originally been contemplated. There were some cases of technical mistakes which adversely affected the programme, like choosing the wrong seeds. Furthermore, due to the general economic conditions affecting the viability of some crops, the Impact Projects could not promote the production of those crops. It was also suggested that

some agricultural units were using the fertilizer that had been delivered to them through the Impact Projects, on crops other than those they had agreed upon.

CHAPTER 8: FOREIGN TRADE

The Foreign Trade Statistics of Iran as published by the Ministry of Finance and Economic Affairs were different in structure and format from the more familiar classification devised by the United Nations.[1] Therefore, in this section the FAO's data, which mostly have been provided officially by the Government of Iran, have been used. It should be noted that none of these figures contain that part of the foreign trade in Iran which was called the "Boundary Transactions". These transactions, which were exempted from all the custom duties, were supposed to be minimal and a part of daily shopping of those people who were living near the boundaries of the country, but sometimes they constituted a major part of the total foreign trade in some commodities.[2]

By law all the international transactions of Iran were the monopoly of the Government, but it was permissible to allow private persons and legally constituted companies to engage in foreign trade as the representatives of the Government. Major agricultural commodities, like cereals and meat, were usually imported by the Government and the activities of the private sector were confined to

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(1) Food and Agriculture Organization of the United Nations.

(2) Probably the commodity most affected was tea. Some personal calculations in 1350 (1971/2) showed that against 6 thousand tons of official import of tea in 1349 (1970/1) there was 14 thousand tons of unofficial import under the title of Boundary Transactions. For further details see:

PARVIZI, A. & RASEKH, H., Economic Study of Tea in Iran - Agricultural Development Bank of Iran, Economic Report No. 8, Tir 1350 (July 1971).

importing edible oil and non-essential items like fruits. The exports of agricultural commodities were mostly carried out by the private sector.

Since the beginning of 1350's (1970's) the combined effect of the increase of the per caput disposable income of many Iranians together with huge government subsidies on many food items has shifted the effective demand for many agricultural commodities. Because the increase in domestic production of several items was not enough to satisfy this demand, the import of a number of agricultural items rose substantially. The commodities most affected were cereals, feed items, sugar, edible oils, fruit, tea, meat, sheep and milk products. The import of cattle grew to augment the production of milk and similarly the import of hatching eggs went up to increase the production of poultry meat and eggs (Table 93).

The agricultural commodities exported from Iran can be divided into two main groups: the first group, which was composed of items like fresh vegetables, tea, cattle and sheep, was mainly exported to neighbouring countries, especially Arab Sheikhdoms in and around the Persian Gulf; and the second group, which was composed of commodities like cotton, nuts, dried fruits and molasses, was exported either through the international markets or by barter agreements to the Eastern Block. In recent years the export of most items in the first group and some items in the second group, like almonds, either decreased or stopped due to the increase in domestic demand; while the export of some items in the latter group, like cotton and molasses, was hampered by government policies (Table 94).

MAJOR AGRICULTURAL IMPORTS OF IRAN
1345-1357
(1966/7-1978/9)

('000 tons)

Iranian year Gregorian year	1345 1966/7	1346 1967/8	1347 1968/9	1348 1969/70	1349 1970/1	1350 1971/2	1351 1972/3	1352 1973/4	1353 1974/5	1354 1975/6	1355 1976/7	1356 1977/8	1357 1978/9
Wheat and flour (wheat equivalent)	165	65	536	1	23	998	775	785	1,452	1,467	443	1,238 (1)	1,539 (1)
Rice (milled)	29	10	24	2	6	60	92	12	191	286	260	600 (1)	500 (1)
Barley	1					192	23	108	178	204	220	350	464
Maize		9	71		12	62	70	131	223	78	214	305	450
Millet and surgham									27	69	128	118 (1)	300 (1)
Sugar (centrifugal, raw)							69	124	121	173	75	95 (1)	80 (1)
Sugar (refined)	272	203	125	70	61	88	87	161	99	424	188	257 (1)	690 (1)
Soybean oil	30	12	29	32	97	95	118	93	179	148	219	158 (1)	320 (1)
Olive oil				1	1		1	1	1	3	1	2 (2)	5 (2)
Sunflowerseed oil		23	15	35	15	5	7	15	35	48	1	15 (1)	15 (1)
Cottonseed oil	24	4	4	24	1	3	16	1	12	19	25	20	51
Onions									4	9	41		
Bananas	3	1			2	1	3	37	71	119	121	126 (1)	100 (2)
Oranges					6	5		31	133	189	261	200 (2)	170 (2)
Apples					2	3	3	6	25	59	62	62	60
Tea	6	5	6	7	6	7	9	9	13	12	17	12	20
Jute	2	6	4	4	6	2	6	6	8	6	13	10	11
Red meat	1	1	1	6	15	7	8	13	24	54	62	112 (1)	77 (1)
Poultry meat								3	2	17	16	25	20
Butter	3	3	3	5	6	7	8	16	21	27	26	26 (1)	26 (1)
Cheese		1	1	1	1	1	2	2	7	11	25	34 (1)	36 (1)
Eggs (in shell)	1	1	1	1	1	2	1	1	14 (1)	10 (1)	17 (1)	12 (1)	25 (1)
Cattle (head)	1,503	862	1,648	1,247	1,821	1,669	274	822 (1)	1,200 (1)	7,000 (1)	7,512 (1)	14,000 (1)	15,000 (1)
Sheep (head)	33,493	5,037	11,397	167,840	269,276	233,154	447,537	450,000	600,000	1,517,473	1,973,000	3,100,000	3,000,000

(1) Unofficial figures.
(2) FAO estimates.

A blank space means either no trade, or trade less than half the unit shown, or data not available.

Sources: Supply Utilization Account Turn Around Document (computer printout 27/3/79) & Trade Yearbook, 1978 - Food and Agriculture Organization of the United Nations (FAO).

Table 94

MAJOR AGRICULTURAL EXPORTS OF IRAN
1345-1357
(1966/7-1978/9)

('000 Tons)

Iranian year Gregorian year	1345 1966/7	1346 1967/8	1347 1968/9	1348 1969/70	1349 1970/1	1350 1971/2	1351 1972/3	1352 1973/4	1353 1974/5	1354 1975/6	1355 1976/7	1356 1977/8	1357 1978/9
Potatoes	17	6	7	5			2	14	9	5			
Molasses	8	14	16			20	22	58	19				
Almonds	3	5	17	19	13	18	18	18	17	3	2	2	
Pistachios	7	5	7	9	10	10	13	16	10	14	9	10	
Tomatoes		1	2	3	4	3	3	5	7	5	4	4 (1)	4 (1)
Onions	5	13	7	16	13	10	6	21	20	14	4	4 (1)	4 (1)
Fresh vegetables	14	7	6	6	7	5	5	6	9	6	4	4 (2)	(2)
Raisins	31	34	34	30	30	40	40	45	40	50	56	50 (1)	55 (2)
Dates	29	20	20	33	44	29	28	40	33	33	14	25 (1)	45 (2)
Tea			1		2	1	1	1	2	2	2	2	2
Cotton lint	78	73	77	91	108	102	116	125	87	154	93	73	85
Cotton linter	13	9	11	11	13	13	12 (2)	16	13	8	8		
Cattle	24421	20280	3466	4399	11153	17652	300		(2)	(2)	(2)	(2)	(2)
Sheep	338627	139188	40955	40864	106747	282114	112679	7399	20000	14375	17300	20000	20000

(1) Unofficial figures.
(2) FAO estimates.
A blank space means either no trade, or trade less than half the unit shown, or data not available.

Sources: Supply Utilization Account Turn Around Document (computer printout 27/3/79) & Trade Yearbook, 1978 - Food and Agriculture Organization of the United Nations (FAO).

According to the FAO's figures, until 1348 (1969/70) there was a broad balance between the export and the import of agricultural products in Iran.[1] Since that year,[2] Iran has turned into a net importer and the deficit of foreign trade of agricultural products which was $3 million in 1349 (1970/1) grew to $1,786 million in 1356 (1977/8). By inclusion of fish and fishery products, forest products and agricultural requisites the deficit of foreign trade of Iran in the agricultural sector in 1356 (1977/8) would increase to $2,288 million (Tables 95 and 96).

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(1) Excluding forestry and fishery.

(2) Some personal calculations at the time on the basis of the Foreign Trade Statistics of Iran showed that, excluding fish and fishery products, forestry products and agricultural requisites, in 1349 (1970/1) Iran for the first time became a net importer of agricultural products. For further information see:

Annual Report and Balance Sheets - Agricultural Development Bank of Iran, from 1348 (1969/70) onwards.

AND

RASEKH, H. & SAFDARI, P., A Study of Agricultural Exports and Imports (of Iran), 1340-1349 (1961/2-1970/1) - Agricultural Development Bank of Iran, Economic Report No. 14, Shahrivar 1351 (September 1972).

AGRICULTURAL IMPORTS OF IRAN
1348-1356
(1969/70-1977/8)

('000 $)

Iranian year Gregorian year	1348 1969/70	1349 1970/1	1350 1971/2	1351 1972/3	1352 1973/4	1353 1974/5	1354 1975/6	1355 1976/7	1356 1977/8
Total merchandise trade	1,525,598	1,693,160	2,081,243	2,543,173	3,688,000	6,614,000	11,696,000	12,766,000	14,566,000
Agricultural products, total	102,676	141,292	253,547	313,457	429,187	1,270,684	1,996,243	1,479,814	2,026,003
Food and animals	45,205	68,373	173,249	201,160	306,078	964,432	1,602,408	1,154,714	1,626,608
Live animals	5,849	7,752	8,028	12,671	23,480	29,857	67,586	85,448	152,218
Meat and meat prepared	4,415	11,810	5,282	6,271	20,506	42,407	111,289	111,311	206,935
Dairy products and eggs	8,302	10,230	15,580	21,316	32,088	68,886	91,258	116,278	135,440
Cereals and cereals prepared	1,530	6,208	104,884	93,191	112,987	539,691	565,862	321,782	679,460
Fruit and vegetables	970	2,943	2,612	11,868	17,372	79,593	132,204	178,973	160,063
Sugar and honey	5,899	6,887	10,770	26,304	75,217	142,546	542,532	244,920	163,410
Coffee, tea, cocoa and spices	13,289	12,856	15,478	17,747	17,022	32,117	36,591	46,190	56,482
Feeding stuffs	2,972	6,667	6,479	7,301	7,276	19,232	8,884	23,712	25,300
Miscellaneous food	1,979	3,020	4,136	4,491	130	10,103	46,202	26,100	47,300(1)
Beverages and tobacco	632	716	2,673	3,490	5,321	10,848	15,659	77,232	134,945
Beverages	560	582	917	1,104	1,234	1,933	3,337	5,049	11,057(1)
Tobacco	72	134	1,756	2,386	4,087	8,915	12,322	72,183	123,888
Crude materials	29,160	29,575	31,787	50,774	57,634	69,481	84,604	98,101	99,997
Hides and skins	2,611	3,004	1,811	3,167	5,546	7,604	4,754	10,119	10,264
Oilseeds	753	373	875	3,152	346	984	3,827	2,640	970(1)
Natural rubber	8,937	7,996	10,080	10,724	16,301	11,876	12,755	17,202	14,500(1)
Textile fibres	14,050	14,605	14,287	28,490	33,970	43,017(1)	58,776	63,440(1)	69,363
Other crude materials	2,809	3,597	4,734	5,241	1,471	6,000(1)	4,492	4,700(1)	4,900(1)
Animal fats and vegetable oils	27,679	42,628	45,838	58,033	60,154	225,923	293,572	149,767	164,453
Animal fats	3,605	3,710	4,224	5,232	6,850	14,053	10,194	9,416	11,170
Fixed vegetable oils	23,213	37,977	40,203	51,017	50,726	208,112	242,928	131,752	144,710
Processed oils	861	941	1,411	1,784	2,578	3,758	40,450	8,599	8,573
Fish and fishery products		1,219	1,161	2,305(1)	3,735	10,603	8,767	19,563	17,697(1)
Forest products		49,550	57,555	78,266	82,738	58,279	264,418	210,253	210,253
Agricultural requisites	48,482	48,727	50,032	72,642	76,823	168,191	408,539	241,363	278,100
Crude fertilizers	8	1,402	4,283	8,937	6,576	20,079	24,748	14,195	18,150
Manufactured fertilizers	8,480	9,392	12,935	4,643	11,983	60,397	154,245	14,967	29,950
Pesticides	5,897	8,680	9,518	9,006	13,151	30,184	53,943	41,217	45,000(1)
Agricultural machineries	34,097	29,253	23,296	50,056	45,113	57,531	175,603	170,984	185,000(1)

(1) FAO estimates

A blank space means either no trade, or trade less than half the unit shown, or data not available.

Sources: Trade Yearbooks, 1975 and 1978 - Food and Agriculture Organisation of the United Nations (FAO).

AGRICULTURAL EXPORTS OF IRAN
1348-1356
(1969/70-1977/8)

('000 $)

Iranian year Gregorian year	1348 1969/70	1349 1970/1	1350 1971/2	1351 1972/3	1352 1973/4	1353 1974/5	1354 1975/6	1355 1976/7	1356 1977/8
Total merchandise trade	2,212,651	2,445,248	2,676,529	3,735,725	6,849,000	23,806,000	19,350,720	23,500,000	24,250,000
Agricultural products, total	133,075	138,009	159,083	202,912	331,333	239,381	301,146	275,860	240,140
Food and Animals	49,506	50,121	51,108	69,375	113,139	94,943	102,154	93,475	71,098
Live animals	1,733	1,749	3,790	1,489	340	897	606	656	900
Meat and meat prepared		28	38		14	9	16	18	
Dairy products and eggs	9	10	7	15	200	28	38	54	
Cereals and cereals prepared	636	759	759	2,077	6,424	4,015	6,414	11,524	6,475
Fruit and vegetables	38,255	36,276	38,626	51,774	86,939	77,620	81,335	73,510	55,029
Sugar and honey	169	47	15	1,298	3,351	834	2,061	12	
Coffee, tea, cocoa and spices	3,161	3,880	3,185	4,704	4,682	8,092	6,336	6,848	7,490
Feeding stuffs	5,477	7,278	4,451	7,776	11,152	3,330	5,118	811	1,150
Miscellaneous food	66	94	237	242	37	118	230	42	54
Beverages and tobacco	83	863	104	276	494	374	491	189	29
Beverages	47	3	1	33	5	5	3	4	
Tobacco	36	860	103	243	489	369	488	185	29
Crude materials	79,449	84,365	101,916	126,658	210,395	140,572	197,765	182,186	169,013
Hides and skins	16,800	14,443	17,119	27,672	28,634	27,665	29,068	31,957	30,900
Oilseeds	227	150	330	464	797	563	769	441	540
Textile fibres	50,674	57,132	68,617	79,977	152,034	88,544	142,878	124,884	111,773
Other crude materials	11,748	12,640	15,850	18,545	28,930	23,800	25,050	24,904	25,800(1)
Animal fats and vegetable oils	4,037	2,660	5,955	6,603	7,305	3,492	736	10	
Animal fats		2		16	229			1	
Fixed vegetable oils	14	11	7	5	173	26	2	5	
Processed oils	4,023	2,647	5,948	6,582	6,903	3,466	734	4	
Fish and fishery products		7,306	7,903	10,371	11,010	9,284	10,602	3,453	3,448(1)
Forest products		1,589	186	370	240	100	237	285	285
Agricultural requisites	6	7	1,222	676	3,969	3,090	290	211	120
Crude fertilizers	1	5	85	242	4	28	117	126	100
Manufactured fertilizers	1		292	1	3,963	2,874	17	6	
Pesticides	2	2	845	433	2	188	145	12	20(1)
Agricultural machineries	2						11	67	

(1) FAO estimates.

A blank space means either no trade, or trade less than half the unit shown, or data not available.

Sources: Trade Yearbooks, 1975 and 1978 - Food and Agriculture Organization of the United Nations (FAO).

CHAPTER 9: CONSUMPTION AND DEMAND

To calculate the total and the per caput consumption figures of various food items, data on the production, imports and exports, changes in stocks and wastage were required. Moreover, for some commodities further information was needed like the amounts which were used for human consumption (e.g. barley) or the amounts which were processed (e.g. tomatoes). Many of these data (e.g. those about wastage or changes in stocks) were not available and most of those available were controversial, like the production figures,[1] or incomplete, like the foreign trade figures. In addition, the Household Budget Surveys in Iran were only published in monetary terms thus rendered it impossible to use them to calculate the actual consumption figures. Therefore, to avoid entanglement with these figures and their appertained inaccuracies and qualifications, the demand projections in this section have been calculated by indices and presented in terms of percent of change.

9-1 Consumption

By using the increased oil revenue of the early 1350's (1970's) to provide various subsidies and import massive amounts of

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(1) Although the Ministry of Agriculture and Rural Development's figures for the production of some major agricultural commodities were generally higher than those of the Statistical Centre of Iran, they were not the highest set of figures proposed or used by various organizations. Furthermore, at the beginning of 1355 (1976/7) a personal data-gathering practice from all the major poultry farms in Iran suggested that the production of poultry meat and eggs in 1354 (1975/6) were at least 20 thousand and 30 thousand tons respectively, higher than propounded by the Ministry.

the more basic food items, the Government gradually obviated the overall shortage of food and, if the average per caput intakes of energy and protein were used as the criteria, solved the problem of undernourishment in Iran.

If the recommended intakes of energy and protein for the United Kingdom (Table 97) were applied to the population of Iran in 1355 (1976/7) and the following assumptions were made:

I. All the male agricultural workers aged 18-64 years were "very active".

II. All the other male workers aged 18-64 years were "moderately active".

III. All the unemployed and also all the inactive male population aged 18-64 years were "sedentary".

IV. The number of pregnant women was 1.2 times the number of under-one-year-olds in that year.

the average recommended per caput intakes of energy and protein in Iran would be 2,310 kilocalories and 57.9 grammes, respectively. Even if instead of the assumptions I, II and III above, the whole male population aged 18-64 years had been assumed to be "very active" the average recommended per caput intakes of energy and protein in Iran in 1355 (1976/7) would have been 2,428 kilocalories and 60.8 grammes, respectively.

The Supply Utilization Account and the Food Supply Analysis for Iran, which have been prepared by the FAO, have mostly been calculated on the basis of the official agricultural statistics

Table 97

RECOMMENDED INTAKE OF NUTRIENTS (1)

(Per person per day)

Age groups	Energy (kcal)	Protein (g)	
		Recommended intake	Minimum requirement
Infants (under 1 year)	800	20	15
Children aged 1 year	1,200	30	19
Children aged 2 years	1,400	35	21
Children aged 3-4 years	1,600	40	25
Children aged 5-6 years	1,800	45	28
Children aged 7-8 years	2,100	53	30
Males aged 9-11 years	2,500	63	36
Males aged 12-14 years	2,800	70	46
Males aged 15-17 years	3,000	75	50
Females aged 9-11 years	2,300	58	35
Females aged 12-14 years	2,300	58	44
Females aged 15-17 years	2,300	58	40
Males aged 18-34 years, sedentary	2,700	68	45
Males aged 18-34 years, moderately active	3,000	75	45
Males aged 18-34 years, very active	3,600	90	45
Males aged 35-64 years, sedentary	2,600	65	43
Males aged 35-64 years, moderately active	2,900	73	43
Males aged 35-64 years, very active	3,600	90	43
Males aged 65-74 years, (all)	2,350	59	39
Males aged 75 years and over	2,100	53	38
Females aged 18-54 years (all, except pregnant)	2,200	55	38
Females aged 18-54 years, pregnant	2,400	60	44
Females aged 55-74 years	2,050	51	36
Females aged 75 years and over	1,900	48	34

(1) Based on: Department of Health and Social Security, Recommended Intakes for the United Kingdom, Reports on Public Health and Medical Subjects No. 120, Her Majesty's Stationary Office, 1969.

Source: Household Food Consumption and Expenditure, 1973, Annual Report of the National Food Survey Committee - Ministry of Agriculture, Fisheries and Food (of the United Kingdom).

provided by the Government of Iran, but the population figures used in calculation of these documents were the estimates of the Demographic Yearbooks of the United Nations. These estimates were lower than the population figures presented by the Statistical Centre of Iran,[1] thus resulting in an overestimation of the available food supplies. Therefore, the FAO's figures of the per caput available energy and protein in Iran were adjusted by the application of a population series[2] based on the Statistical Centre of Iran's data. These calculated figures showed that during 1350-1356 (1971/2-1977/8) period the per caput available energy and protein in Iran grew rapidly and in 1355 (1976/7) they were well above the recommended intakes which were calculated earlier (Table 98).

After the increase of oil revenue in 1352 (1973/4), gradually some new articles were added to the previous articles of the White Revolution, two of which dealt with the improvement of nourishment of some sections of the population. The first article was about providing adequate and nourishing food for all pregnant women and also all children under 2 years of age; and the second article was about supplying a litre of milk per day to every child in primary and guidance schools during school days. The first article because of too many administrative problems was never really executed, but attempts were made to implement the second article, which later became known as the School Meal Project.

At the beginning neither the production of milk nor the total

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(1) 1.8 million in 1355 (1976/7).

(2) See Table 39.

Table 98

AVERAGE INTAKES OF ENERGY AND PROTEIN IN IRAN
1345-1356
(1966/7-1977/8)

(Per person per day)

Iranian year	Gregorian year	Population ('000)	Intakes		Adjusted intakes(1)	
			Energy (kcal)	Protein (g)	Energy (kcal)	Protein (g)
		I	II	III	IV	V
1345	1966/7	23,798	2,287	58.9	2,110	54.4
1346	1967/8	24,463	2,276	59.7	2,094	54.9
1347	1968/9	25,153	2,292	61.3	2,104	56.3
1348	1969/70	25,872	2,311	62.7	2,116	57.4
1349	1970/1	26,624	2,325	62.8	2,126	57.4
1350	1971/2	27,410	2,380	64.0	2,173	58.5
1351	1972/3	28,229	2,539	67.8	2,333	62.3
1352	1973/4	29,084	2,602	69.1	2,408	64.0
1353	1974/5	29,977	2,805	74.3	2,615	69.3
1354	1975/6	30,909	3,089	82.0	2,902	77.0
1355	1976/7	31,880	3,171	82.3	3,003	77.9
1356	1977/8	32,891	3,317	88.6	3,167	84.6

(1) The figures of columns II and III have been adjusted by the population figures in Table 39 to calculate the figures in columns IV and V.

Source: Food Supply Analysis (computer printout 27/3/79) - Food and Agriculture Organization of the United Nations (FAO).

capacity of pasteurizing plants in Iran was enough to cater for the extra demand that had been created by the approval of that article. Therefore, together with the introduction of some subsidies for dairy farming it was decided to build new plants in 13 of the population centres of the country.(1) A private company was formed to establish 11 of those plants and the remaining 2 were to be established directly by the Government. The production of milk was not expected to increase at the required rate to provide the necessary raw material for these plants, thus it was decided to build the plants to process milk powder as well as fresh milk. In addition, because of remoteness of many schools and lack of sufficient roads which were making the transportation of pasteurized milk to all schools virtually impossible, these plants were to produce sterilized as well as pasteurized milk. Another problem was that many children were not accustomed to milk-drinking and that habit had to be developed, therefore, it was decided to start with the provision of ¼ of a litre of milk per day per child and supplement it with a snack or a bun or a pack of nuts etc. and gradually increase the amount of milk. The first 3 plants were due to start at the beginning of the academic year 1356/7 (1977/8) but from 1354/5 (1975/6) the distribution of those supplementary items began and by 1355/6 (1976/7) most schools were covered by the project.

9-2 Demand Projection

Apart from the population that was mentioned earlier, some

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(1) Although it was a private company, it was treated like the Karoon Sugar-Cane Company. See Chapter 4 section 4-6-3.

other factors influencing the demand for food and the methodology of projection are discussed below. The information available about the year 1355 (1976/7) was more than any other recent year, thus it was chosen as the base year of projection.

9-2-1 Per Caput Private Consumption Expenditure

Under the present circumstances making any assumption or attempting any projection about the per caput income and expenditure or the distribution of income and expenditure in the year 1379 (2000/1) would be highly speculative. Nevertheless, to project the demand for food items some assumptions about the private consumption expenditure have to be made. Among various factors about the present state of Iran, taken into consideration, are:

I. A period of time will be needed before the country absorbs the full impact and after-effects of the revolution and the economy begins to expand. The length of this period will depend on the speed with which the new Government establishes itself and stimulates the economy. In this respect the procedures of decision making, the actual policies of the Government and the conformity of these decisions and policies to the economic realities of the country will be important.

II. After the revolution the slump in economic activities in Iran has been unprecedented.(1)

(1) Annual Report and Balance Sheet, 1357 (1978/9) - Central Bank of Iran.

III. The number of unemployed, according to some newspapers, has been estimated to be as high as 3 million.(1)

IV. Even if the revolution had not taken place a drastic redressing of the economy would have been needed, the effects of which could have caused a deep recession.

V. The long-term improvement of economic conditions of the country and a better distribution of income will be essential to the survival of any government. The oil revenue should make it easier to achieve.

In the light of these considerations the three alternatives of 1, 2 and 3 percent per annum are assumed for the average rate of growth of per caput private consumption expenditure up to the year 1379 (2000/1) (Table 99). It is also assumed that the distribution of private consumption expenditure between the urban and the rural areas will improve and by 1379 (2000/1) the urban-rural ratio of per caput private consumption expenditure will be 2. By this assumption the urban per caput private consumption expenditure under the first alternative, one percent a year, will show an annual rate of decrease of 0.46 percent for the period (Table 100).

9-2-2 Physiological Requirements

The minimum level of physiological requirements and the recommended level of intake of food of a population are mainly determined by the interrelated effects of the number of each sex,

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(1) e.g. See THE GUARDIAN, 13 November 1979.

Table 99

ASSUMPTIONS ABOUT PRIVATE CONSUMPTION EXPENDITURE IN IRAN
1379
(2000/1)

(Rls. 10^9)

Rate of growth of per caput private consumption expenditure (%) \ Population projection	L	M	H
1	3215.9	3377.9	3522.5
2	4073.7	4279.0	4462.2
3	5148.5	5407.9	5639.4

Table 100

ASSUMPTIONS ABOUT PER CAPUT PRIVATE CONSUMPTION EXPENDITURE IN IRAN
1379
(2000/1)

Alternatives	Assumptions	Urban	Rural	Whole country
1	Per caput private consumption expenditure (Rls.)	66,866	33,433	57,806
	Indices (1355=100)	89.5	169.5	127.0
	Average annual rates of growth (%)	-0.46	2.22	1.00
2	Per caput private consumption expenditure (Rls.)	84,704	42,352	73,226
	Indices (1355=100)	113.4	214.8	160.8
	Average annual rates of growth (%)	0.52	3.24	2.00
3	Per caput private consumption expenditure (Rls.)	107,050	53,525	92,545
	Indices (1355=100)	143.3	271.4	203.3
	Average annual rates of growth (%)	1.51	4.25	3.00

average age, height, weight, rate of activity, rate of pregnancy among females and living climate of that population.

Up to a certain age and to a certain extent, the effect of age encompasses the effects of height and weight on average physiological requirements of an age group, although it varies amongst individuals. After that certain age the rate of activity, usually among males, and the rate of pregnancy among females are the more important factors.

Above the minimum level of physiological requirements and especially above the recommended level of intake of food, height (in the long run) and weight instead of being two of the determining factors of requirements would be affected by the actual level of intake of food. There are no national statistics available in Iran but the measurement of a sample in a study by the FAO[1] showed that the average height and weight of population of Iran are much lower than those of the United States of America.

The hard physical activities when performed in heat increase the level of bodily energy expenditure, but in most hot areas of Iran the usual working hours, for those activities that cannot be administered under controlled temperatures, have been changed to separate periods in early mornings and later afternoons.

As it was shown in the section 9-1 above, in 1355 (1976/7) the effects of number of each sex, age, level of activity among males

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(1) SEN GOPTA, P.N., Food and Policy Planning Based on Household Food Consumption and Nutrition Surveys; a report to the Government of Iran, by Food and Agriculture Organization of the United Nations (FAO), 1968.

and rate of pregnancy among females, with certain assumptions, were studied among the population of Iran and the actual per caput intakes of energy and protein were higher than their recommended amounts. With the same assumptions if the projected demand for food in 1379 (2000/1), which will be discussed later, was satisfied the actual per caput intakes of energy and protein would still be more than their recommended amounts. This will allow the average height and weight of the population of Iran to catch up with the western standards if it can be sustained for a long enough period.

9-2-3 Composition of Food and Changing Habits

During 1350-1356 (1971/2-1977/8) the per caput intakes of energy and protein in Iran grew rapidly but the composition of food was heavily based on vegetable products. In 1355 (1976/7) out of the total per caput intakes of energy and protein in Iran some 92 and 82 percent respectively originated from vegetable products (Table 101).

Changing habits might change the composition of food and this would be partly manifested in elasticities of demand for various agricultural commodities. Some other factors influencing the demand for different food items, like the increase of the rate of urbanization or the growth in the proportion of female workers in the total female population of the country which might affect the demand for various agricultural commodities and/or processed food items and/or ready-made food, could not be explicitly quantified with the present available information. However, by treating all the urban population in the same way it was implicitly assumed that

Table 101

COMPOSITION OF ENERGY AND PROTEIN IN IRAN (1)
1355
(1976/7)

(Per person per day)

Items	Energy (kcal)	Protein (mg)
Cereals	1,920	55,096
Roots and tubers	28	655
Pulses	51	3,157
Vegetables (excluding melons)	38	2,120
Fruits (including melons)	95	1,188
Stimulants	2	319
Spices	8	372
Vegetable oils	255	0
Sugar and syrups	323	0
Tree nuts	33	996
Alcoholic beverages	9	32
Total vegetable products	2,762	63,935
Meat and offals	96	7,138
Eggs	14	1,156
Animal fats	60	40
Milk and milk products	68	5,396
Fish and fishery products	1	233
Honey	2	2
Total animal products	241	13,965
Grand Total	3,003	77,900

(1) This table has been prepared in the same way as Table 98.

Source: Food Supply Analysis (computer printout 27/3/79) - Food and Agriculture Organization of the United Nations (FAO).

the newly urbanized people would acquire all the nutrition habits of the already urbanized population.

9-2-4 Prices

As was discussed earlier, prices of all the basic agricultural commodities were directly and those of the less basic items were indirectly affected by the Government policies. The long-term agricultural objectives of the Government and also its future policies which would influence the agricultural sector were not known, thus it was assumed that the relative prices of all the goods and services in Iran in 1379 (2000/1) would remain the same as they were in 1355 (1976/7).

9-2-5 Elasticities

The main reasons that prevented the use of time series to calculate the expenditure elasticities of demand for various agricultural commodities in Iran were the lack of price indices for the rural areas, the changes of criteria for classification of households in expenditure groups in different years[1] and the paucity of the number of surveys.

The latest urban household budget surveys available were those of 1353 (1974/5) and 1354 (1975/6), while the latest rural household budget surveys available were for 1353 (1974/5) and 1355 (1976/7). The urban household budget survey of 1354 (1975/6) lacked a set of tables compared to the other three surveys. That set was

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(1) All the individual questionnaires for every year were needed for any attempt of reclassification.

about the actual classification of sample households by various criteria like expenditure and size. The figure of the total number of sample households,[1] which was the only figure available, was employed to calculate the distribution of households by size by using another table of the same survey (Table 102). The available figure was multiplied by the percentage figures showing the distribution of households in different size groups.[2] The resultant figures, which show the actual total number of households in every size groups, replaced the percentage figures in the above-mentioned table and the whole table was solved as a matrix to estimate the actual total number of households in every expenditure group.[3] The formula used was:-

$$Y = b_0 + b_1x_1 + b_2x_2 + \ldots\ldots + b_{10}x_{10}$$

where:

Y = the total number of households in the household group

$x_1, x_2, \ldots, x_{10}$ = the percentage distribution of households in every expenditure group

b_0 = constant

$b_1, b_2, \ldots, b_{10}$ = the estimated total number of households in every expenditure group

and the multiple linear regression method was applied to solve the

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(1) 7,780 households.

(2) The right hand column of Table 102.

(3) The bottom row of Table 102.

Table 102

PERCENTAGE DISTRIBUTION OF HOUSEHOLDS BY SIZE AND EXPENDITURE GROUPS IN URBAN AREAS OF IRAN
1354
(1975/6)

No. of persons in a household \ Expenditure groups (Rls.)	Less than 2,500	2,500 to 4,999	5,000 to 7,499	7,500 to 9,999	10,000 to 14,999	15,000 to 19,999	20,000 to 29,999	30,000 to 49,999	50,000 to 99,999	100,000 and more	Total Average
1	46.34	20.68	8.54	6.35	1.86	0.76	1.05	0.83	0.32	0.00	4.20
2	29.39	25.09	15.86	10.77	7.43	5.38	4.21	4.45	2.85	7.07	8.14
3	11.08	16.58	13.67	11.10	11.06	9.00	6.34	6.62	7.04	11.47	9.43
4	4.80	12.46	19.47	16.15	18.07	15.45	14.36	16.64	15.84	15.66	15.88
5	2.89	9.43	13.22	17.57	18.77	16.93	18.00	17.20	19.27	20.50	16.82
6	1.91	7.25	9.60	12.51	14.41	18.89	17.01	17.79	15.77	13.83	14.91
7	0.53	5.31	11.25	11.66	11.99	14.74	16.43	13.81	14.59	11.97	12.92
8	3.05	2.99	5.60	7.59	9.20	10.39	10.38	10.92	10.31	7.56	8.99
9	0.00	0.21	1.93	5.21	5.41	5.13	6.83	5.64	6.38	4.42	5.02
10 or more	0.00	0.00	0.84	1.09	1.81	3.33	5.41	6.10	7.64	7.62	3.69
(1) Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

(1) Any difference between the total figures and the sum of the individual items is due to rounding of the figures.

Source: Urban Household Budget Survey, 1354 (1975/6) - Statistical Centre of Iran.

matrix (Table 103).[1] Every estimated figure from the matrix was multiplied by its corresponding distribution figures[2] to calculate the actual distribution of households by size and expenditure groups (Table 104). The distribution of household members was calculated by applying every group-size to the number of households in that group except for the "10-persons-or-more-in-a-household" group which was assumed to contain on average the same number of persons in a household as the corresponding group in the urban household budget survey of 1353 (1974/5), (Table 105).

The figures showing the distribution of households and household members in different expenditure groups were used to transform the data of the tables containing the average monthly expenditure of households in various expenditure groups into per caput figures (Tables 106, 107, 108 and 109). In these tables most commodities have been presented in groups of food items. Therefore the calculation of elasticities and subsequently the demand projections had to be adjusted accordingly.

The following functions were used to calculate the expenditure elasticities of food items:[3]

I.	Linear	$y = a + bx + u$
II.	Logarithmic	$\log y = a + b \log x + u$

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(1) $b_1, b_2, \ldots, b_{10}$.

(2) Columns 1 to 10 of Table 102.

(3) GOREUX, L. M., Income and Food Consumption, Monthly Bulletin of Agricultural Economics and Statistics, Vol. IX, No. 10, Food and Agriculture Organization of the United Nations (FAO), October 1960.

Table 103

CALCULATION OF THE TOTAL NUMBER OF HOUSEHOLDS
IN EVERY EXPENDITURE GROUP IN THE
URBAN HOUSEHOLD BUDGET SURVEY
OF 1354 (1975/6) IN IRAN

bi	Coefficient	Standard error of coefficient
b_0	-0.03541	0.00520
b_1	143.57778	2.49079
b_2	828.84764	5.48809
b_3	1211.81400	1.00645
b_4	1191.83553	4.40846
b_5	1157.91495	1.88264
b_6	1193.60742	4.80122
b_7	903.07877	5.03586
b_8	519.71383	0.78003
b_9	478.16149	1.36133
b_{10}	151.48186	0.83077

Coefficient of correlation = 1.00

Table 104

DISTRIBUTION OF HOUSEHOLDS BY SIZE AND EXPENDITURE GROUPS IN URBAN AREAS OF IRAN
1354
(1975/6)

No. of persons in a household \ Expenditure groups (Rls.)	Less than 2,500	2,500 to 4,999	5,000 to 7,499	7,500 to 9,999	10,000 to 14,999	15,000 to 19,999	20,000 to 29,999	30,000 to 49,999	50,000 to 99,999	100,000 and more	Total
1	70	99	44	57	22	9	13	10	3	0	327
2	44	120	83	97	89	62	50	54	24	10	633
3	17	79	71	100	132	104	76	80	58	17	734
4	7	60	101	146	216	179	171	202	131	22	1,235
5	4	45	69	159	224	196	215	208	160	29	1,309
6	3	35	50	113	171	219	202	216	131	20	1,160
7	1	25	59	105	143	171	196	167	121	17	1,005
8	5	14	29	69	110	120	124	132	85	11	699
9	0	1	10	47	65	59	81	69	53	6	391
10 or more	0	0	4	10	22	39	64	74	63	11	287
Total	151	478	520	903	1,194	1,158	1,193	1,212	829	143	7,780

Table 105

DISTRIBUTION OF HOUSEHOLD MEMBERS BY SIZE AND EXPENDITURE GROUPS IN URBAN AREAS OF IRAN
1354
(1975/6)

No. of persons in a household \ Expenditure groups (Rls.)	Less than 2,500	2,500 to 4,999	5,000 to 7,499	7,500 to 9,999	10,000 to 14,999	15,000 to 19,999	20,000 to 29,999	30,000 to 49,999	50,000 to 99,999	100,000 and more	Total
1	70	99	44	57	22	9	13	10	3	0	327
2	88	240	166	194	178	124	100	108	48	20	1,266
3	51	237	213	300	396	312	228	240	174	51	2,202
4	28	240	404	584	864	716	684	808	524	88	4,940
5	20	225	345	795	1,120	980	1,075	1,040	800	145	6,545
6	18	210	300	678	1,026	1,314	1,212	1,296	786	120	6,960
7	7	175	413	735	1,001	1,197	1,372	1,169	847	119	7,035
8	40	112	232	552	880	960	992	1,056	680	88	5,592
9	0	9	90	423	585	531	729	621	477	54	3,519
10 or more(1)	0	0	45	112	246	435	714	826	703	122	3,203
Total	322	1,547	2,252	4,430	6,318	6,578	7,119	7,174	5,042	807	41,589

(1) The exact figure is 11.16119403.

Table 106

AVERAGE MONTHLY HOUSEHOLD EXPENDITURE FOR FOOD AND TOBACCO PRODUCTS IN URBAN AREAS OF IRAN, BY MONTHLY EXPENDITURE GROUPS
1353
(1974/5)

(Rials)

Total monthly expenditure of a household / Food items	Less than 2,000	2,000 to 2,999	3,000 to 3,999	4,000 to 4,999	5,000 to 7,499	7,500 to 9,999	10,000 to 12,499	12,500 to 14,999	15,000 to 19,999	20,000 to 29,999	30,000 and more
Total average expenditure	1,337	2,540	3,505	4,509	6,299	8,735	11,201	13,751	17,374	24,265	61,544
Total average food and tobacco expenditure	589	1,236	1,797	2,231	3,194	4,263	5,382	6,353	7,769	10,382	19,576
Flour, pasta, cereals and bread	230	388	532	631	825	1,008	1,171	1,311	1,261	1,763	3,489
Flour and pasta	2	9	33	21	27	28	55	28	58	179	342
Cereals	16	20	50	59	109	195	243	331	310	654	2,091
Bread	212	360	449	551	689	785	873	952	894	929	1,056
Meat	92	239	365	478	693	936	1,246	1,540	1,964	2,573	4,395
Red meat	90	239	349	464	668	895	1,201	1,398	1,727	2,135	3,289
Poultry meat	0	0	2	0	13	18	36	107	181	330	831
Sea animals meat	2	0	14	14	11	22	28	35	55	108	276
Dairy products and eggs	86	139	179	252	394	550	677	882	1,066	1,384	2,425
Milk	11	10	21	37	59	80	115	119	166	217	332
Other dairy products	55	107	127	173	262	352	419	580	676	884	1,547
Eggs	20	23	30	43	73	119	143	182	223	283	546
Animal fats and veg. oils	7	36	57	60	93	150	187	203	261	428	1,137
Fruits and vegetables	72	179	279	366	540	772	1,089	1,385	1,793	2,380	4,143
Tree fruits	8	17	26	41	62	125	208	291	405	588	1,199
Citrus fruits	7	21	25	49	87	141	182	294	371	593	927
Other fruits	25	56	90	118	179	215	331	375	461	530	801
Vegetables (carrots, beetroots, peas, lettuces and similars)	9	24	31	37	54	88	114	139	164	226	455
Other vegetables (potatoes, onions, tomatoes and similars)	23	61	106	120	159	204	255	285	393	445	762
Dried fruits and pulses	5	11	23	26	50	64	98	87	150	192	434
Dried fruits	0	2	1	4	6	9	25	15	56	50	227
Pulses	5	8	21	22	44	56	73	72	94	142	207
Sugar and lump sugar, sweets, tea, coffee and cocoa	43	105	173	194	306	374	448	475	657	859	1,881
Sugar and lump sugar	20	71	104	120	184	226	252	288	350	425	697
Sweets	9	11	15	20	27	38	55	65	87	146	494
Tea, coffee and cocoa	14	23	54	55	96	110	141	122	220	288	690
Spices, sauces and similars	2	4	6	12	18	27	39	34	62	85	359
Spices	2	4	5	11	14	14	26	25	29	42	109
Sauces and similars	0	0	0	1	3	13	13	9	33	43	350
Drinks, prepared foods and tobacco products	51	134	184	211	276	382	409	436	555	724	1,313
Non-alcoholic drinks	0	0	0	1	2	7	8	14	21	28	86
Alcoholic drinks	0	0	0	0	2	4	7	27	16	35	164
Prepared foods (used in the house)	3	7	15	13	19	37	47	43	55	82	195
Prepared foods (used out of the house)	7	37	43	60	80	146	146	145	226	257	464
Tobacco products	41	90	126	137	172	188	201	208	238	322	404
Number of households	196	261	336	325	1,041	954	831	686	1,022	1,073	1,215
Number of persons	442	806	1,363	1,405	5,115	5,107	4,677	4,111	6,063	6,451	7,406
Persons/household	2.26	3.09	4.06	4.32	4.92	5.35	5.63	5.99	5.93	6.01	6.10

Any difference between the total figures and the sum of the individual items is due to rounding of the figures.

Source: Urban Household Budget Survey, 1353 (1974/5) - Statistical Centre of Iran.

Table 107

AVERAGE MONTHLY HOUSEHOLD EXPENDITURE FOR FOOD & TOBACCO PRODUCTS IN RURAL AREAS OF IRAN, BY MONTHLY EXPENDITURE GROUPS
1353
(1974/5)

(Rials)

Total monthly expenditure of a household / Food items	Less than 2,000	2,000 to 2,999	3,000 to 3,999	4,000 to 4,999	5,000 to 7,499	7,500 to 9,999	10,000 to 12,499	12,500 to 14,999	15,000 to 19,999	20,000 to 29,999	30,000 and more
Total average expenditure	1,325	2,558	3,501	4,464	5,134	8,495	10,153	13,396	16,957	23,312	47,945
Total average food and tobacco expenditure	894	1,777	2,465	3,154	4,193	5,712	6,828	7,965	9,571	11,598	15,042
Flour, pasta, cereals and bread	455	862	1,117	1,377	1,739	2,357	2,652	3,019	3,610	4,294	5,535
Flour and pasta	8	14	15	42	41	29	29	37	58	34	75
Cereals	35	88	135	187	432	723	982	1,311	1,817	2,439	3,574
Bread	412	760	968	1,148	1,266	1,605	1,642	1,671	1,735	1,831	1,886
Meat	32	98	191	438	662	1,058	1,279	1,682	2,146	2,597	3,330
Red meat	27	83	171	415	615	921	1,183	1,318	1,547	1,823	2,100
Poultry meat	0	0	8	0	17	85	68	316	528	587	901
Sea animals meat	5	15	12	24	29	53	28	48	72	187	329
Dairy products and eggs	76	190	316	337	461	621	751	919	989	1,193	1,507
Milk	4	20	37	36	49	70	93	98	146	158	193
Other dairy products	61	146	222	247	323	420	505	636	647	756	1,056
Eggs	11	24	58	54	90	131	153	185	195	279	258
Animal fats and veg. oils	39	77	153	147	213	346	426	428	602	745	807
Fruits and vegetables	45	101	122	206	291	355	520	703	834	1,225	1,754
Tree fruits	0	3	1	7	8	14	54	100	97	188	301
Citrus fruits	1	0	0	0	10	7	21	36	94	206	331
Other fruits	10	32	24	54	64	86	106	176	210	253	417
Vegetables (carrots, beetroots, peas, lettuces and similars)	7	13	19	21	27	28	47	54	82	117	134
Other vegetables (potatoes, onions, tomatoes and similars)	28	53	77	124	183	220	292	336	361	462	570
Dried fruits and pulses	13	18	50	62	106	160	157	203	229	286	428
Dried fruits	2	1	16	13	23	39	33	54	72	123	210
Pulses	10	17	34	48	83	120	124	149	157	163	218
Sugar, lump sugar, sweets, tea, coffee and cocoa	194	335	386	456	543	616	696	743	853	882	1,201
Sugar and lump sugar	105	196	222	263	320	368	416	429	500	514	641
Sweets	12	19	16	18	25	25	39	45	49	76	243
Tea, coffee and cocoa	77	120	149	176	198	223	241	269	304	293	317
Spices, sauces and similars	3	5	8	13	17	22	22	26	27	41	45
Spices	3	5	8	13	16	21	21	24	24	36	39
Sauces and similars	0	0	0	0	1	1	2	2	3	5	7
Drinks, prepared foods and tobacco products	37	92	120	117	161	177	225	243	272	334	434
Non-alcoholic drinks	0	0	0	0	0	0	7	3	3	7	32
Alcoholic drinks	0	0	0	0	0	0	0	0	0	0	0
Prepared foods (used in the house)	0	0	0	0	0	0	0	0	0	0	0
Prepared foods (used out of the house)	0	0	0	0	0	0	0	0	0	0	0
Tobacco products	37	92	120	117	161	177	218	239	249	328	402
Number of households	132	162	230	283	681	515	392	263	292	250	150
Number of persons	239	563	973	1,327	3,466	3,023	2,394	1,667	1,924	1,731	1,162
Persons/household	1.81	3.48	4.23	4.69	5.09	5.87	6.11	6.34	6.59	6.92	7.75

Any differene between the total figures and the sum of the individual items is due to rounding of the figures.

Source: Rural Household Budget Survey, 1353 (1974/5) - Statistical Centre of Iran.

Table 108

AVERAGE MONTHLY HOUSEHOLD EXPENDITURE FOR FOOD & TOBACCO PRODUCTS IN URBAN AREAS OF IRAN, BY MONTHLY EXPENDITURE GROUPS
1354
(1975/6)

(Rials)

Food items \ Total monthly expenditure of a household	Less than 2,500	2,500 to 4,999	5,000 to 7,499	7,500 to 9,999	10,000 to 14,999	15,000 to 19,999	20,000 to 29,999	30,000 to 49,999	50,000 to 99,999	100,000 and more
Total average expenditure	1,583	3,928	6,234	8,772	12,471	17,470	24,472	37,908	67,135	207,217
Total average food and tobacco expenditure	625	1,923	3,212	4,383	6,155	8,748	11,649	17,340	29,874	42,408
Flour, pasta, cereals and bread	194	492	745	995	1,212	1,626	1,985	3,679	7,780	12,502
Flour and pasta	5	8	12	34	49	73	149	366	747	1,473
Cereals	6	62	155	282	390	682	919	2,401	5,948	10,010
Bread	183	422	578	679	774	871	918	912	1,085	1,020
Meat	106	411	711	952	1,400	1,977	2,752	3,880	5,980	8,086
Red meat	106	402	687	877	1,252	1,661	2,228	2,933	4,322	5,928
Poultry meat	0	7	19	59	113	277	452	808	1,191	1,702
Sea animals meat	0	2	5	16	35	38	72	139	467	456
Dairy products and eggs	91	211	401	525	757	1,068	1,388	1,813	2,607	2,991
Milk	8	21	45	56	89	126	178	258	402	343
Other dairy products	66	122	241	307	444	630	816	1,059	1,550	1,853
Eggs	17	68	115	161	223	312	394	496	655	795
Animal fats and veg. oils	14	74	127	191	334	510	725	1,271	2,177	4,381
Fruits and vegetables	74	276	508	745	1,092	1,640	2,095	2,794	4,475	5,293
Tree fruits	2	30	34	75	130	240	359	473	793	941
Citrus fruits	12	27	70	114	181	326	476	719	1,142	1,244
Other fruits	25	87	175	243	347	475	530	642	1,018	981
Vegetables (carrots, beet-roots, peas, lettuces and similars)	12	30	49	70	104	140	184	224	242	425
Other vegetables (potatoes, onions, tomatoes, and similars)	23	102	180	243	330	459	546	736	1,180	1,602
Dried fruits and pulses	8	28	51	64	110	153	189	396	811	1,175
Dried fruits	0	6	5	12	23	32	50	169	448	810
Pulses	8	22	46	52	86	122	139	227	363	364
Sugar, lump sugar, sweets, tea, coffee and cocoa	90	243	389	492	734	1,052	1,465	2,007	3,735	4,377
Sugar and lump sugar	39	141	244	284	403	515	656	841	1,268	1,558
Sweets	15	17	27	39	64	74	179	356	936	1,159
Tea, coffee and cocoa	36	85	119	187	267	463	629	810	1,531	1,660
Spices, sauces and similars	1	6	16	16	42	57	99	162	339	492
Spices	1	5	15	13	32	37	57	88	154	253
Sauces and similars	0	1	1	3	10	20	42	74	185	238
Drinks, prepared foods and tobacco products	44	176	245	372	413	577	765	1,038	1,458	3,478
Non-alcoholic drinks	0	1	2	4	8	14	31	90	116	185
Alcoholic drinks	0	0	0	2	1	2	27	54	108	959
Prepared food (used in the house)	1	13	16	30	29	29	63	63	182	396
Prepared food (used out of the house)	11	57	70	159	176	291	326	466	552	895
Tobacco products	33	105	158	177	199	242	318	365	501	1,042
Items not mentioned elsewhere	3	6	19	31	62	87	186	300	512	632
Number of households	151	478	520	903	1,194	1,158	1,192	1,212	829	143
Number of persons	322	1,547	2,252	4,430	6,318	6,578	7,119	7,174	5,042	808
Persons/household	2.13	3.24	4.33	4.90	5.29	5.68	5.97	5.92	6.08	5.65

Any difference between the total figures and the sum of the individual items is due to rounding of the figures.

Source: Urban Household Budget Survey, 1354 (1975/6) - Statistical Centre of Iran.

Table 109

AVERAGE MONTHLY HOUSEHOLD EXPENDITURE FOR FOOD & TOBACCO PRODUCTS IN RURAL AREAS OF IRAN, BY MONTHLY EXPENDITURE GROUPS
1355
(1976/7)

(Rials)

Total monthly expenditure of a household / Food items	Less than 2,500	2,500 to 4,999	5,000 to 7,499	7,500 to 9,999	10,000 to 14,999	15,000 to 19,999	20,000 to 29,999	30,000 to 49,999	50,000 to 99,999	100,000 and more
Total average expenditure	1,603	3,816	6,204	8,650	12,213	17,208	24,135	37,330	67,492	212,358
Total average food and tobacco expenditure	988	2,609	4,215	5,694	7,769	9,919	12,488	15,970	15,829	13,413
Flour, pasta, cereals and bread	441	1,021	1,599	2,074	2,622	3,034	3,581	4,097	3,748	3,082
Flour and pasta	1	5	3	3	7	6	7	5	1	15
Cereals	33	143	388	644	1,052	1,380	1,840	2,102	1,812	1,570
Bread	407	873	1,208	1,426	1,564	1,648	1,735	1,990	1,935	1,497
Meat	26	251	560	903	1,593	2,459	3,075	3,889	5,107	3,675
Red meat	23	222	514	762	1,241	1,816	1,965	2,552	2,973	1,780
Poultry meat	0	5	14	89	269	514	975	1,112	1,838	1,896
Sea animals meat	3	24	31	52	82	130	134	225	296	0
Dairy products and eggs	216	499	741	961	1,161	1,352	1,586	1,701	1,586	1,638
Milk	12	36	53	99	107	134	180	200	118	113
Other dairy products	173	378	549	690	863	989	1,190	1,377	1,238	1,265
Eggs	31	84	139	171	190	229	216	223	230	259
Animal fats and veg. oils	43	133	215	291	421	511	587	885	857	937
Fruits and vegetables	45	194	380	509	775	1,089	1,277	1,726	1,763	1,224
Tree fruits	1	3	10	6	22	23	57	83	132	17
Citrus fruits	0	0	4	5	8	31	74	166	23	228
Other fruits	16	65	133	159	301	458	460	729	800	162
Vegetables (Carrots, beet-roots, peas, lettuces and similars)	5	28	50	65	85	127	199	171	259	217
Other vegetables (potatoes, onions, tomatos and similars)	23	97	184	274	360	451	487	577	549	610
Dried fruits and pulses	13	41	68	99	143	147	222	276	305	94
Dried fruits	8	11	21	26	36	30	68	94	107	32
Pulses	5	29	47	72	107	117	154	182	198	62
Sugar, lump sugar, sweets, tea, coffee and cocoa	162	314	463	532	655	732	969	985	1,074	1,052
Sugar and lump sugar	86	165	250	293	355	396	462	504	526	576
Sweets	6	11	14	13	30	37	85	107	176	9
Tea, coffee and cocoa	70	137	199	227	270	298	422	374	372	467
Spices, sauces and similars	2	8	14	20	26	31	47	55	60	78
Spices	2	5	9	12	14	16	22	29	24	55
Sauces and similars	1	3	5	9	12	14	24	26	36	23
Drinks, prepared foods and tobacco products	39	146	164	278	344	485	652	710	986	1,530
Non-alcoholic drinks	0	1	0	2	2	3	8	31	36	124
Alcoholic drinks	0	0	0	0	0	0	0	13	0	957
Prepared foods (used in the house)	1	5	2	0	11	5	4	10	9	0
Prepared foods (used out of the house)	1	11	15	40	62	121	174	235	352	77
Tobacco products	37	129	147	235	269	356	466	421	589	372
Items not mentioned elsewhere	2	4	12	28	30	81	493	1,645	342	93
Number of households	484	1,186	1,261	1,072	1,412	703	602	274	104	43
Number of persons	1,146	4,356	5,966	5,697	8,451	4,539	4,088	1,914	727	255
Persons/household	2.37	3.67	4.73	5.31	5.99	6.46	6.79	6.99	6.99	5.93

Any difference between the total figures and the sum of the individual items is due to rounding of the figures.

Source: Rural Household Budget Survey, 1355 (1976/7) - Statistical Centre of Iran.

III. Semilogarithmic $y = a + b \log x + u$

IV. Log-inverse $\log y = a - \frac{b}{x} + u$

V. Log-log-inverse $\log y = a - \frac{b}{x} - c \log x + u$

VI. Inverse $y = a - \frac{b}{x} + u$

where:

x = per caput expenditure for all the goods and services

y = per caput expenditure for a (group of) food item(s)

and logarithms are in natural basis. The corresponding coefficients of elasticity were:

I. $b \frac{x}{y} = \frac{x}{x + \frac{a}{b}}$

II. b

III. $\frac{b}{y} = \frac{b}{a + b \log x}$

IV. $\frac{b}{x}$

V. $\frac{b - cx}{x}$

VI. $\frac{b}{xy} = \frac{b}{ax - b}$

The formulae I, II and III did not allow for a saturation level but the remaining formulae contained saturation levels and the formula V could show the changes of consumption of a commodity when income changed from a very low level to a very high level.(1)

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(1) Agricultural Commodity Projections 1970-1980, Vol. II, Food and Agriculture Organization of the United Nations (FAO), 1971.

None of the above-mentioned consumption functions were predetermined for any set of data, but all the functions were fitted to every set of data and the best fit for every item (or a group of items) was chosen by the application of the statistical significance tests and also its co-ordination with the other members of the same group. In addition, every set of rural data of 1353 (1974/5) was concatenated with its corresponding urban set of the same year, and also every set of rural data of 1355 (1976/7) was concatenated with its corresponding urban set of 1354 (1975/6), which had been adjusted by the food price index at retail level, and then all of the above-mentioned consumption functions were fitted to every set of concatenated data to explore the possibilities of using a unified set of expenditure elasticities for the whole country, but none of these sets produced a statistically significant fit.

The elasticities were calculated only for the best fit to every item (or group of items) for all four household budget surveys.

In demand projections, generally the elasticity coefficients of 1355 (1976/7) for the rural areas and those of 1354 (1975/6) for the urban areas were used except for those items where statistically significant fits were not available. In those cases the corresponding figures of 1353 (1974/5) were employed (Tables 110 and 111).

In practice the best fit functions were entirely constituted of logarithmic, semilogarithmic, log-inverse and log-log-inverse functions.

9-2-6 Per Caput and Total Demand

The changes of per caput demand for various food items in

ELASTICITIES USED FOR URBAN DEMAND PROJECTIONS OF IRAN

Food items	Year of survey	(1) Function	Elasticity	Degree of explanation	Parameters					
					a		b		c	
					Coefficient	(2) S.E.C.	Coefficient	(2) S.E.C.	Coefficient	(2) S.E.C.
Total food and tobacco	1354	III	0.23	93.72	-13,714.49	1,477.47	1,970.12	180.31	-	-
Flour, pasta, cereals and bread	1354	III	0.24	86.61	-3,899.82	620.45	549.43	75.72	-	-
Flour and pasta	1354	III	0.26	84.39	-486.83	82.53	66.25	10.07	-	-
Cereals	1354	IV	0.06	93.53	6.75	0.26	-4,564.45	424.51	-	-
Bread	1354	IV	0.01	93.92	5.20	0.03	-506.92	45.60	-	-
Meat	1354	III	0.23	96.72	-2,576.49	200.05	375.21	24.41	-	-
Red meat	1354	III	0.22	97.68	-1,784.77	118.31	265.20	14.44	-	-
Poultry meat	1354	III	0.25	94.61	-614.29	59.13	85.54	7.22	-	-
Sea animals meat	1354	III	0.25	82.61	-177.46	32.53	24.47	3.97	-	-
Dairy products and eggs	1354	III	0.22	97.84	-916.08	59.98	139.22	7.32	-	-
Milk	1354	IV	0.03	92.92	4.01	0.14	-2,291.01	223.61	-	-
Other dairy products	1354	III	0.22	97.60	-559.00	38.49	84.67	4.70	-	-
Eggs	1354	III	0.21	99.44	-235.25	7.87	36.19	0.96	-	-
Animal fats and vegetable oils	1354	IV	0.04	91.57	5.91	0.22	-3,354.37	359.80	-	-
Fruits and vegetables	1354	III	0.23	97.40	-1,721.62	120.14	253.84	14.66	-	-
Tree fruits	1354	IV	0.05	98.24	5.03	0.11	-3,812.85	180.48	-	-
Citrus fruits	1354	III	0.24	95.57	-477.41	42.61	68.35	5.20	-	-
Other fruits	1354	III	0.21	95.15	-296.37	30.46	46.58	3.72	-	-
Vegetables (carrots, beet-roots, peas, lettuces and similars)	1354	III	0.22	96.31	-116.40	10.01	17.66	1.22	-	-
Other vegetables (potatoes, onions, tomatoes and similars)	1354	III	0.22	96.98	-485.22	36.66	71.76	4.47	-	-
Dried fruits and pulses	1354	III	0.25	89.58	-394.29	54.42	55.06	6.64	-	-
Dried fruits	1354	III	0.26	82.75	-272.43	48.81	36.90	5.96	-	-
Pulses	1354	III	0.22	93.78	-121.62	13.53	18.13	1.65	-	-
Sugar and lump sugar, sweets, tea, coffee and cocoa	1354	III	0.23	93.90	-1,427.91	153.59	208.09	18.74	-	-
Sugar and lump sugar	1354	III	0.21	98.10	-451.90	27.84	69.00	3.40	-	-
Sweets	1354	III	0.25	85.31	-412.32	68.51	56.99	8.36	-	-
Tea, coffee and cocoa	1354	III	0.23	93.51	-563.53	62.65	82.08	7.65	-	-
Spices, sauces and similars	1354	III	0.25	90.91	-169.92	21.60	23.58	2.64	-	-
Spices	1354	III	0.24	92.09	-82.52	9.84	11.59	1.20	-	-
Sauces and similars	1354	III	0.25	88.51	-87.41	12.51	11.99	1.53	-	-
Drinks, prepared food and tobacco products	1354	III	0.24	84.86	-978.48	170.88	139.66	20.85	-	-
Non-alcoholic drinks	1354	III	0.25	90.71	-66.19	8.45	9.12	1.03	-	-
Alcoholic drinks	1354	V	2.11	96.71	-17.32	1.94	2,358.85	600.49	2.14	0.21
Prepared food (used in the house)	1354	II	0.97	93.07	-5.89	0.77	0.97	0.09	-	-
Prepared food (used out of the house)	1354	III	0.22	97.44	-264.81	18.43	39.27	2.25	-	-
Tobacco products	1354	III	0.22	85.37	-254.62	46.26	38.57	5.65	-	-
Items not mentioned elsewhere	1354	III	0.24	93.45	-230.13	24.77	32.29	3.02	-	-

(1) Functions: II = Logarithmic, III = Semilogarithmic, IV = Log-inverse, V = Log-log-inverse.
(2) Standard Error of Coefficient.

1354 = 1975/6

ELASTICITIES USED FOR RURAL DEMAND PROJECTIONS OF IRAN

Food items	Year of survey	Function (1)	Elasticity	Degree of explanation	Parameters					
					a		b		c	
					Coefficient	S.E.C. (2)	Coefficient	S.E.C. (2)	Coefficient	S.E.C. (2)
Total food and tobacco	1355	IV	0.06	98.35	7.83	0.04	-1,266.70	58.02	-	-
Flour, pasta, cereals and bread	1355	V	-0.05	98.86	7.34	0.22	-1,015.65	63.97	-0.10	0.02
Flour and pasta	-	-	-	-	-	-	-	-	-	-
Cereals	1355	IV	0.11	95.40	6.02	0.12	-2,216.97	172.03	-	-
Bread	1355	V	-0.08	86.60	6.57	0.30	-489.72	86.72	-0.10	0.03
Meat	1355	IV	0.15	98.38	6.87	0.09	-2,873.60	130.48	-	-
Red meat	1355	IV	0.13	94.21	6.35	0.15	-2,483.21	217.57	-	-
Poultry meat	1355	IV	0.24	90.61	5.86	0.36	-4,690.51	533.78	-	-
Sea animals meat	1355	IV	0.12	97.93	3.85	0.08	-2,388.20	122.77	-	-
Dairy products and eggs	1355	IV	0.04	98.18	5.61	0.02	-731.49	35.19	-	-
Milk	1353	III	0.26	92.81	-64.06	7.21	10.51	0.97	-	-
Other dairy products	1355	IV	0.04	97.86	5.34	0.03	-727.78	38.02	-	-
Eggs	1355	IV	0.03	84.28	3.73	0.07	-669.64	102.23	-	-
Animal fats and vegetable oils	1355	IV	0.07	98.33	4.98	0.05	-1,459.83	67.36	-	-
Fruits and vegetables	1355	IV	0.09	97.46	5.70	0.07	-1,801.30	102.85	-	-
Tree fruits	1353	III	0.32	91.07	-121.89	13.84	17.94	1.88	-	-
Citrus fruits	1353	III	0.33	81.54	-130.09	22.16	18.90	3.00	-	-
Other fruits	1353	III	0.29	95.44	-138.75	11.65	21.64	1.58	-	-
Vegetables (carrots, beet-roots, peas, lettuces and similars)	1355	IV	0.10	97.83	3.73	0.07	-1,934.71	101.87	-	-
Other vegetables (potatoes, onions, tomatoes and similars)	1355	IV	0.08	96.84	4.73	0.07	-1,545.20	98.63	-	-
Dried fruits and pulses	1353	III	0.27	98.41	-139.00	6.96	22.27	0.94	-	-
Dried fruits	1353	III	0.31	90.72	-73.84	8.77	11.12	1.19	-	-
Pulses	1353	IV	0.07	93.62	3.75	0.11	-1,417.59	123.33	-	-
Sugar and lump sugar, sweets, tea, coffee and cocoa	1355	IV	0.03	93.53	5.08	0.04	-633.22	58.90	-	-
Sugar and lump sugar	1355	IV	0.03	93.20	4.41	0.04	-601.44	57.42	-	-
Sweets	1353	V	2.05	94.72	-15.88	2.13	2,377.18	397.39	2.17	0.25
Tea, coffee and cocoa	1355	III	0.16	86.77	-38.64	12.22	10.97	1.51	-	-
Spices, sauces and similars	1355	III	0.27	98.73	-19.10	1.00	3.08	0.12	-	-
Spices	1355	III	0.28	87.11	-11.92	2.07	1.88	0.26	-	-
Sauces and similars	1353	III	0.32	93.57	-21.59	2.07	3.20	0.28	-	-
Drinks, prepared food and tobacco products	1355	III	0.30	95.91	-381.70	34.56	58.64	4.28	-	-
Non-alcoholic drinks	1355	V	1.22	94.21	-10.40	1.50	1,381.74	427.42	1.29	0.16
Alcoholic drinks	1355	V	2.00	88.19	-18.30	3.19	3,212.01	910.91	2.16	0.35
Prepared food (used in the house)	-	-	-	-	-	-	-	-	-	-
Prepared food (used out of the house)	1355	IV	0.13	85.88	3.63	0.25	-2,551.94	365.78	-	-
Tobacco products	1355	IV	0.05	92.07	4.38	0.07	-1,045.87	108.55	-	-
Items not mentioned elsewhere	-	-	-	-	-	-	-	-	-	-

(1) Functions: III = Semilogarithmic, IV = Log-inverse, V = Log-log-inverse.
(2) Standard Error of Coefficient.

1353 = 1974/5, 1355 = 1976/7.

both the urban and the rural areas were calculated by using the following formulae that correspond to the consumption functions mentioned earlier:(1)

$$\text{II.} \quad \log \frac{y_1}{y_0} = E_0 \log \frac{x_1}{x_0} + u(t_1 - t_0)$$

$$\text{III.} \quad \frac{y_1}{y_0} = E_0 \log \frac{x_1}{x_0} + 1 + u(t_1 - t_0)$$

$$\text{IV.} \quad \log \frac{y_1}{y_0} = E_0 \left(1 - \frac{x_0}{x_1}\right) + u(t_1 - t_0)$$

$$\text{V.} \quad \log \frac{y_1}{y_0} = \frac{E_0}{1 - \frac{x_0}{x_m}} \left(1 - \frac{x_0}{x_1} - \frac{x_0}{x_m} \log \frac{x_1}{x_0}\right) + u(t_1 - t_0)$$

where:

0 = denoted the base period

1 = denoted the period that the projection was made for

E = coefficient of elasticity

$x_m = \frac{b}{c}$ the value of the total per caput consumption expenditure for which the maximum level of consumption was reached

The changes of per caput demand for food items in the whole country were calculated using the following formula:-

$$\frac{y_1}{y_0} = \frac{y_{u,0} (1 + r_u) A_1 + y_{R,0} (1 + r_R) B_1}{y_{u,0} A_0 + y_{R,0} B_0}$$

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(1) The ways these formulae were arrived at are described in the Mathematical Appendix.

where:

u = denoted the urban area

R = denoted the rural area

r = the rate of change of per caput demand over the projection period

A = the ratio of urban population in total population

B = the ratio of rural population in total population

Every $y_{R,0}$ for the rural areas of Iran in 1355 (1976/7) was calculated from the rural household budget survey of that year in the (1) following way:-

$$y_{R,i,1355} = \frac{C_1H_1 + C_2H_2 + \ldots\ldots + C_{10}H_{10}}{P_S}$$

where:

$y_{R,i,1355}$ = the average rural per caput consumption expenditure for the food item (i), (e.g. milk) in 1355

$C_1,..,C_{10}$ = the average expenditure for the food item (i) by a household in various expenditure groups (e.g. Rls. 12 by a household in the "less-than-Rls. 2,500-per-month" group)

$H_1,..,H_{10}$ = the number of households in various expenditure groups (e.g. 484 in the "less-than-Rls. 2,500-per-month" group)

P_S = the total number of persons in the sample (i.e. 37,142)

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(1) See Table 109.

Every $y_{u,0}$ for the urban areas of Iran in 1355 (1976/7) was calculated from the urban household budget survey of 1354 (1975/6) by first (1) using the following formula:-

$$y_{u,i,1354} = \frac{C_1H_1 + C_2H_2 + \ldots\ldots + C_{10}H_{10}}{P_S}$$

and then using one of the formulae mentioned earlier, according to (2) the best fit function of the item, to transform it to the appropriate $y_{u,i,1355}$.

The changes of per caput demand were calculated with three alternatives for the annual rate of increase of per caput consumption expenditure (Table 112).

The following formula was used for the calculation of the changes of total demand for food items:

$$\frac{Y_1}{Y_0} = \frac{y_1P_1}{y_0P_0}$$

where:

Y = total demand

P = population

All the calculations were carried out with three alternatives for the increase of population (Table 113).

If the calculated rates of change in per caput demand for various food items were applied to the Supply Utilization Account of

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(1) See Table 108.

(2) See p. 291.

Table 112

INDICES OF PROJECTED PER CAPUT DEMAND FOR FOOD ITEMS IN IRAN
1379
(2000/1)

1355 (1976/7) = 100

Per caput private consumption expenditure per annum (%)	1			2			3		
Area	Urban	Rural	Whole country	Urban	Rural	Whole country	Urban	Rural	Whole country
Wheat	99.9	95.6	85.5	100.1	93.5	85.0	100.3	91.4	84.4
Other cereals	99.3	104.6	116.4	100.7	106.1	118.1	101.8	107.2	119.4
Pulses	97.5	102.9	113.0	102.6	103.8	118.1	106.9	104.5	122.2
Sugar and lump sugar	97.7	101.2	115.4	102.6	101.6	120.4	107.6	101.9	125.3
Sweets	92.2	101.2	138.2	103.1	101.6	146.2	109.0	101.9	154.1
Animal fats and vegetable oils	99.5	102.9	121.1	100.5	103.8	122.2	101.2	104.5	123.1
Vegetables (carrots, beet-roots, peas, lettuces and similars)	97.6	104.2	115.6	102.8	105.5	120.9	107.9	106.5	126.2
Other vegetables (potatoes, onions, tomatoes and similars)	97.6	103.3	114.3	102.8	104.4	119.5	107.9	105.2	124.6
Tree fruits	99.4	116.9	147.8	100.6	124.5	149.8	101.5	132.0	151.4
Citrus fruits	97.3	117.4	146.8	103.0	125.2	155.4	108.6	133.0	163.8
Other fruits	97.7	115.3	117.8	102.6	122.2	124.0	107.6	129.0	130.1
Dried fruits	97.1	116.4	128.3	103.3	123.7	136.4	109.4	131.0	144.5
Tea, coffee and cocoa	97.4	108.4	120.1	102.9	112.2	126.4	108.3	116.0	132.7
Spices	97.3	114.8	133.1	103.0	121.4	140.9	108.6	128.0	148.5
Red meat	97.6	105.5	116.7	102.8	107.2	122.2	107.9	108.6	127.6
Poultry meat	97.2	110.3	110.6	103.1	113.7	116.6	109.0	116.4	122.4
Sea animals meat	97.2	105.0	107.7	103.1	106.6	113.2	109.0	107.9	118.5
Milk	99.6	113.7	116.4	100.4	119.9	118.3	100.9	126.0	120.0
Other dairy products	97.6	101.7	98.5	102.8	102.2	102.4	107.9	102.6	106.3
Eggs	97.7	101.2	116.9	102.6	101.6	122.0	107.6	101.9	127.0

Table 113

INDICES OF PROJECTED TOTAL DEMAND FOR FOOD ITEMS IN IRAN
1379
(2000/1)

1355 (1976/7) = 100

Population growth alternatives	L			M			H		
Per caput private consumption expenditure per annum (%)	1	2	3	1	2	3	1	2	3
Wheat	141.3	140.5	139.5	148.4	147.6	146.5	154.8	153.9	152.8
Other cereals	192.4	195.2	197.3	202.1	205.0	207.3	210.7	213.8	216.1
Pulses	186.8	195.2	202.0	196.2	205.0	212.1	204.6	213.8	221.2
Sugar and lump sugar	190.7	199.0	207.1	200.3	209.0	217.5	208.9	218.0	226.8
Sweets	228.4	241.6	254.7	239.9	253.8	267.5	250.2	264.7	279.0
Animal fats and vegetable oils	200.1	202.0	203.4	210.2	212.1	213.7	219.2	221.2	222.8
Vegetables (carrots, beet-roots, peas, lettuces and similars)	191.0	199.8	208.6	200.7	209.9	219.1	209.3	218.9	228.5
Other vegetables (potatoes, onions, tomatoes and similars)	188.9	197.5	205.9	198.4	207.4	216.3	206.9	216.3	225.6
Tree fruits	244.3	247.6	250.2	256.6	260.0	262.8	267.6	271.2	274.1
Citrus fruits	242.6	256.8	270.7	254.8	269.8	284.3	265.7	281.3	296.5
Other fruits	194.7	204.9	215.0	204.5	215.3	225.8	213.2	224.5	235.5
Dried fruits	212.0	225.4	238.8	222.7	236.8	250.8	232.3	246.9	261.6
Tea, coffee and cocoa	198.5	208.9	219.3	208.5	219.4	230.4	217.4	228.8	240.2
Spices	220.0	232.9	245.4	231.1	244.6	257.8	240.9	255.1	268.8
Red meat	192.9	202.0	210.9	202.6	212.1	221.5	211.3	221.2	231.0
Poultry meat	182.8	192.7	202.3	192.0	202.4	212.5	200.2	211.1	221.6
Sea animals meat	178.0	187.1	195.8	187.0	196.5	205.7	195.0	204.9	214.5
Milk	192.4	195.5	198.3	202.1	205.4	208.3	210.7	214.2	217.2
Other dairy products	162.8	169.2	175.8	171.0	177.8	184.5	178.3	185.4	192.4
Eggs	193.2	201.6	209.9	202.9	211.8	220.5	211.6	220.9	229.9

Iran, which have been prepared by the Food and Agriculture Organization of the United Nations (FAO)[1], the results would show that the level of per caput demand for protein and energy in 1379 (2000/1), would be about the same as it was in 1355 (1976/7), but the composition of food would be different (Table 114).

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(1) See p. 264.

Table 114

PROJECTION OF COMPOSITION OF ENERGY AND PROTEIN IN IRAN
1379
(2000/1)

Per person per day

Per caput private consumption expenditure per annum (%)	1		2		3	
Intakes	Energy (kcal)	Protein (mg)	Energy (kcal)	Protein (mg)	Energy (kcal)	Protein (mg)
Cereals	1,798	50,444	1,799	50,406	1,798	50,282
Roots and tubers	32	749	34	783	35	816
Pulses	58	3,567	61	3,728	63	3,857
Vegetables (excluding melons)	44	2,450	45	2,563	47	2,675
Fruits (including melons)	129	1,610	134	1,682	139	1,750
Stimulants	2	383	3	403	3	423
Spices	11	523	11	554	12	584
Vegetable oils	309	0	312	0	314	0
Sugar and syrups	365	0	381	0	395	0
Tree nuts	43	1,279	45	1,358	48	1,440
Alcoholic beverages(1)	+	+	+	+	+	+
Total vegetable products	2,791	61,005	2,825	61,477	2,854	61,827
Meat and offals	111	8,255	116	8,653	121	9,043
Eggs	17	1,351	17	1,411	18	1,469
Animal fats	73	48	73	49	74	49
Milk and milk products	69	5,490	72	5,681	74	5,870
Fish and fishery products	1	251	1	264	1	276
Honey	2	2	2	2	3	3
Total animal products	273	15,397	281	16,064	291	16,710
Grand total	3,064	76,402	3,106	77,541	3,145	78,537

(1) The availability of these items would be indeterminable.

CHAPTER 10: SUMMARY AND CONCLUSIONS

If all the assumptions of this study about Iran were materialized in the period between 1355 (1976/7) and 1379 (2000/1):

I. The population of the country would increase by 65-81 percent and the rate of urbanization would rise from 46.9 to 72.9 percent.

II. The per caput food consumption expenditure would grow by 13-23 percent in real terms and the per caput intakes of energy and protein would stay above their recommended levels. The per caput intake of protein would remain relatively constant, but the share of animal protein in it, which was 8 percent, would increase by 2-3 percent. The total per caput intake of energy would grow by 2-5 percent, while the per caput intake of energy from cereals would decrease to a certain level and remain constant at that level. In the per caput energy from cereals, the share of wheat would diminish, whereas the share of other cereals, mainly rice, would increase.

III. The growth of per caput demand for food, population and rate of urbanization would increase the total food expenditure of the country by 80-120 percent in real terms.

Therefore, if the demand for food was satisfied, on average, a nutrition problem would not appear in Iran. However, in a ceteris

paribus situation, supply would be a major predicament. To retain the same degree of self-sufficiency in production of wheat as that of 1355 (1976/7), there should be 12.1-13.2 million hectares under cultivation[1] and if the total self-sufficiency was to be achieved that area should increase to 13.2-14.5 million hectares.[1] On the whole, to achieve complete self-sufficiency in production of food in 1379 (2000/1) some 37-40 million hectares of land, against the present figure of around 17 million hectares, should be under cultivation but this is a task impossible to accomplish due to severe shortage of water. It is generally believed that not only has the cultivated area of Iran, which has increased by about 50 percent in the past 20 years, reached its limits but also many parcels of low potential unirrigated land should be transformed into pastures. Furthermore, it would be impossible to follow the way that the Government chose in mid 1350's (1970's) to eliminate the overall shortage of food in Iran, namely the increase of imports, as the only way of augmenting the food supply, because in such a case the pressure on the balance of payment would be more than the country could afford, especially if the diminishing export of oil was also taken into consideration. However, in spite of many existing problems, a high degree of self-sufficiency would not be an impossible target to achieve if the general state of agriculture in the country was improved. For example, if the yield per hectare of wheat in Iran was increased to

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(1) Excluding the fallow lands.

about the same level as that of the United Kingdom[1] in 1976/7, the under-cultivation area required to achieve the complete self-sufficiency in production of wheat in Iran in 1379 (2000/1) would be 2.4-2.6 million hectares.

The government policies and activities, which in recent years have been the dominant factors in shaping the present state of agriculture in Iran, would be the most important motivators in revitalizing this sector of the economy. To accomplish that aim it is the critics view that the Government should limit its own role to policy making, guidance and improvement of infrastructure and drop all its operational activities especially those which compete with the private sector. In addition, the basis and procedures of decision making should change. In particular the trial and error method should be replaced by farming policies on the basis of intensive and extensive studies. A comprehensive and long-term agricultural policy, mainly on the basis of non-interference and eliminating all the present restrictions on the activities of the private sector and also increasing the flow of information, should be adopted and retained and also the policy itself and any alteration or modification of it should be in advance, clearly and widely advertised. The main areas that would be covered by that comprehensive policy and the major activities that the Government should undertake are discussed below.

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(1) The yield of wheat in the United Kingdom was 3,851 kilogrammes per hectare in 1976 and 4,873 kilogrammes in 1977, (see: Production Yearbook, 1977, FAO). In these calculations it was assumed to be 4,000 kilogrammes per hectare.

Land

A complete cadastral survey of the country should be carried out and the registration records improved to be accurate and easily accessable.

A thorough, quick and unconditional programme for consolidation and/or amalgamation of agricultural lands should be executed and the future fragmentation of lands should be prevented. Afterwards, in the areas where the programme has been carried out, or if the Government cannot finance such a programme, all the bureaucratic restrictions on transfer of agricultural lands, which have been imposed for the fear of appearance of a new generation of landlords, should be lifted and all the laws and regulations, which are daunting the potential investors, should be replaced.

Appropriate measures should be taken to halt the deterioration of pastures and to transform the low potential unirrigated lands into pastures.

Water

A complete and detailed study of water resources, both the surface and the subterranean, and the possibilities of control and better and more efficient use of them should be carried out, followed by heavy investments to control, preserve and use the maximum controllable water of the country.

International Trade

A system of preferential duties and tariffs should be devised to promote the production of strategic commodities in the country and

the subsidization of imports as well as the import of agricultural commodities by the government agencies, at least those items which the private sector would be ready to undertake to import, should be stopped.

Extension Services and Research

The Government should cease to be directly involved in these areas but provide subsidies for specific universities at strategic parts of Iran to research on all aspects of improving the agricultural sector of the country and make the results of their study freely available to all agricultural units. Moreover, differnt extension services like running exhibition farms, providing guidance centres for agricultural units, organizing short courses for farmers, etc. should be arranged through universities.

Prices and Subsidies

The control or interference of the Government in price setting of agricultural commodities as well as the subsidization of some food items, inputs and investments should cease.

By carrying out the above-mentioned measures and taking some other steps like allocating sufficient credits through the banks as well as promoting the insurance[1] of agricultural commodities on a sound commercial basis and also providing the necessary infrastructural facilities like roads, it would be possible to obviate the

(1) Against the local or the national disasters (e.g. locust attack or drought).

obstacles to agricultural investment, transform the subsistence farming units into the commercial ones and improve the standard of living in the rural areas of Iran.

MATHEMATICAL APPENDIX

The ways the per caput demand formulae (section 9-2-5) were arrived at, are described below.

Formula II

For the periods 1 and 0 respectively, the consumption functions could be written:

$$y_1 = e^{a + ut_1} x_1^b$$

$$y_0 = e^{a + ut_0} x_0^b$$

when the first formula was divided by the second one and their logarithms were calculated:

$$\log \frac{y_1}{y_0} = b \log \frac{x_1}{x_0} + u(t_1 - t_0)$$

when b was replaced by E_0:

$$\log \frac{y_1}{y_0} = E \log \frac{x_1}{x_0} + u(t_1 - t_0)$$

Formula III

For the periods 1 and 0 respectively, the consumption functions could be written:

$$e^{y_1} = e^{a + zt_1} x_1^b$$

$$e^{y_0} = e^{a + zt_0} x_0^b$$

when the first formula was divided by the second one and their logarithms were calculated:

$$y_1 - y_0 = b \log \frac{x_1}{x_0} + z(t_1 - t_0)$$

when y_0 was carried to the other side and both sides of the formula were divided by y_0:

$$\frac{y_1}{y_0} = \frac{b}{y_0} \log \frac{x_1}{x_0} + \frac{z}{y_0} (t_1 - t_0) + 1$$

when $\frac{b}{y_0}$ and $\frac{z}{y_0}$ were replaced by E_0 and u:

$$\frac{y_1}{y_0} = E_0 \log \frac{x_1}{x_0} + 1 + u(t_1 - t_0)$$

Formula IV

For the periods 1 and 0 respectively, the consumption functions could be written:

$$y_1 = e^{a - \frac{b}{x_1} + ut_1}$$

$$y_0 = e^{a - \frac{b}{x_0} + ut_0}$$

when the first formula was divided by the second one and their logarithms were calculated:

$$\log \frac{y_1}{y_0} = \frac{b}{x_0} - \frac{b}{x_1} + u(t_1 - t_0) = \frac{b}{x_0} (1 - \frac{x_0}{x_1}) + u(t_1 - t_0)$$

when $\frac{b}{x_0}$ was replaced by E_0:

$$\log \frac{y_1}{y_0} = E_0 (1 - \frac{x_0}{x_1}) + u(t_1 - t_0)$$

Formula V

For the periods 1 and 0 respectively, the consumption functions could be written:

$$y_1 = e^{a - \frac{b}{x_1} + ut_1} x_1^{-c}$$

$$y_0 = e^{a - \frac{b}{x_0} + ut_0} x_0^{-c}$$

when the first formula was divided by the second one and their logarithms were calculated:

$$\log \frac{y_1}{y_0} = \frac{b}{x_0} - \frac{b}{x_1} - c \log \frac{x_1}{x_0} + u\,(t_1 - t_0)$$

$$= \frac{b}{x_0}\left(1 - \frac{x_0}{x_1} - \frac{c}{b} x_0 \log \frac{x_1}{x}\right) + u(t_1 - t_0) \qquad (*)$$

$\frac{b}{x_0}$ can be developed:

$$\frac{b}{x_0} = \frac{\frac{1}{x_0}}{\frac{1}{b}}\left(\frac{b - cx_0}{b - cx_0}\right) = \frac{\frac{b}{x_0} - c}{1 - \frac{c}{b}x_0}$$

When $(\frac{c}{b})$ and $(\frac{b}{x_0} - c)$ were replaced by $(\frac{1}{x_m})$ and E_0 respectively, and then computed in the (*) above:

$$\log \frac{y_1}{y_0} = \frac{E_0}{1 - \frac{x_0}{x_m}}\left(1 - \frac{x_0}{x_1} - \frac{x_0}{x_m} \log \frac{x_1}{x_0}\right) + u(t_1 - t_0)$$

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